

# AMERICAN ARTISAN

NOVEMBER 1956

Contents ..... Page 4

## RESIDENTIAL AIR CONDITIONING WARM AIR HEATING SHEET METAL CONTRACTING



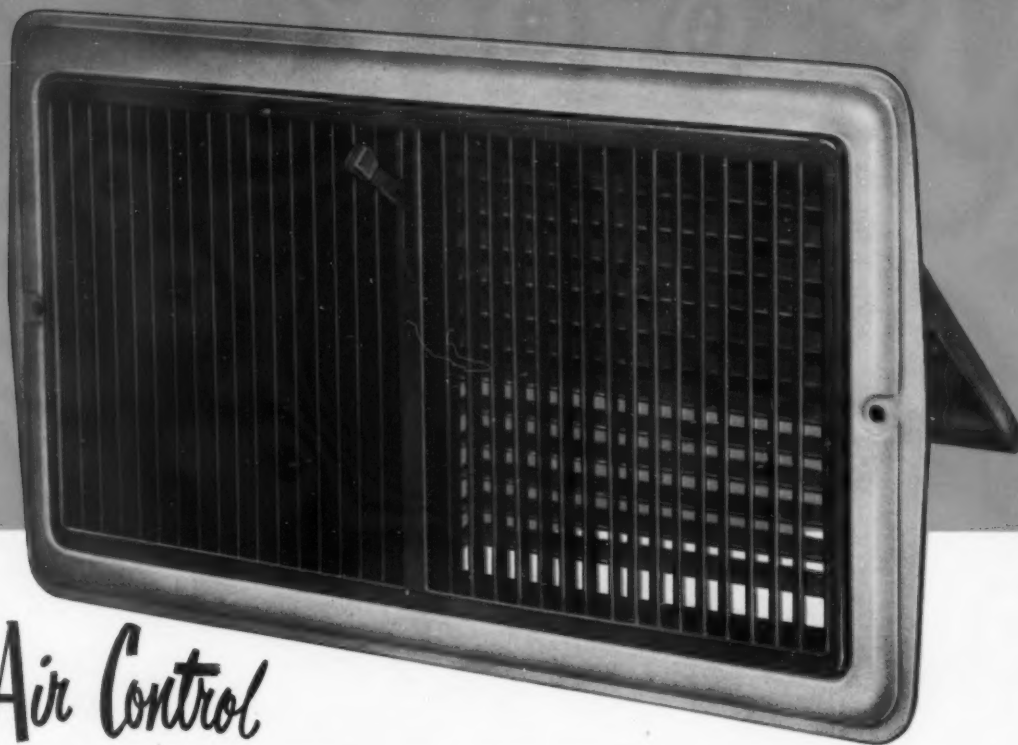
SHOPS ON WHEELS expand rural  
dealer's heating-cooling market 30

CERTIFIED HEATING appeals to  
builders and public ..... 40

CONDENSING UNIT maintenance  
increases cooling capacity .. 46

HOW TO MAKE an up-and-over  
two way offset fitting ..... 63

# ALL THESE\* ADVANTAGES



NEW *Air Control*

## NO. 20 SERIES REGISTERS AND GRILLES



Cut-away view shows fully-adjustable front and back fins, plus balancing damper.

Here's a truly-superior four-way control register, combining the top-performance features you want at a price that makes it your best buy.

You get all these advanced features:

- \* *Four-Way Control* — front and back fins are fully adjustable, separately, from the face.
- \* *Brilliant Styling* — smooth, contoured lines set a new standard of register beauty.
- \* *Handsome, Two-Tone Finish* — blends perfectly with any interior in today's modern homes.
- \* *Volume Control Damper* — opens to full 90°, doesn't affect air pattern at any setting.

At any price this would be the finest register on the market. But you actually pay 30% less for this outstanding register value, than for any other fully-adjustable four-way control register.



**AIR CONTROL PRODUCTS, INC.**

156 Center Street

Coopersville, Michigan

# AT 30% LESS

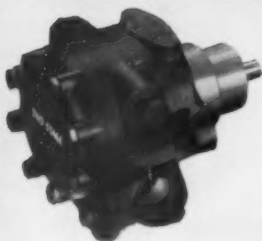
THAN ANY OTHER FULLY-ADJUSTABLE 4-WAY REGISTER

ASK YOUR JOBBER . . . OR WRITE FOR FULL INFORMATION





SUNDSTRAND



MODEL H—high-pressure, two-stage, for long line, high lift. 3, 6, 10, 14, and 20 gph.



## First in fuel units!

### SAY OIL BURNER SALESMEN

On a workday, you never have to ask the oil burner salesman about his Sundstrand Fuel Unit—it's an important part of his sales talk . . . makes his product sell faster and easier, because Sundstrand's *first* with men who buy and specify. But anywhere, any time, he'll tell you Sundstrand units mean better satisfied customers and save valuable hours—*they just don't give trouble! Are you always enthusiastic about the fuel units you specify? If they're Sundstrand, you'll say, "Yes sir! First in fuel units!"*

## SUNDSTRAND HYDRAULIC DIVISION

of Sundstrand Machine Tool Co., 2210 Harrison Ave., Rockford, Ill.—Eastern Sales Office: 89 Summit Ave., Summit, N. J.  
Made in Canada by John Inglis, Ltd., 14 Strachan Ave., Toronto—Made in Sweden by Sundstrand Hydraulic AB Stockholm



# AMERICAN ARTISAN

NOVEMBER 1956

## FEATURES

Certified Heating-Cooling Program Picks up Speed .....	40
Dealer Uses Certified Heating to Boost Project Sales ....	44
Condensing Unit Maintenance Cuts Cooling Costs .....	46
Mobile Shops Extend Dealer's Heating Market .....	50
Metal Expansion Fold Weatherproofs Panel Joints .....	53
Organization, Promotion—Cornerstones for Success .....	54
Preventive Maintenance Saves Costly Callbacks .....	57
Builders Go for Zone Control .....	60
How to Make an Up-and-Over Two Way Offset .....	63
Streamlined Record System Turns Time into Profit .....	66
Canned Sales Presentation Holds Prospects' Interest .....	69
Heat Pump Makes New House "An Island of Comfort" ..	72
"Going-Coming" Rule Limits Compensation Claims .....	82

## BRIEFS

How to Fabricate Stainless Steel with Shop Tools .....	52
ARI Proposes Standards for Publishing AC Ratings .....	59
How Do You Rate as a Business Manager? .....	74

## DEPARTMENTS

The Editor's Notebook .....	6
What's Happening .....	19
Washington Letter .....	31
Editorial — Get on the Holiday Bandwagon .....	39
Hugh Reid's Pattern Problem .....	63
Idea Exchange for Dealers and Contractors .....	79
You and the Law .....	82
What the Associations Are Doing .....	88
Equipment Developments .....	124
New Literature .....	140
We Hear That .....	148
Wholesaler Doings .....	162
Merchandising Ideas .....	166
Appointments .....	168
Index to Advertisers .....	175

Founded 1864; Vol. 93 No. 11

RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING

SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

Editorial Director—C. M. BURNAM JR.

## EDITOR

CLYDE M. BARNES

ASSOCIATE EDITOR

PHILIP D. WARD

ASSISTANT EDITOR

H. C. LENNARTSON

ADVERTISING STAFF

WALLACE J. OSBORN

ROBERT J. OSBORN

New York City

MURRAY HILL 9-8293

ROBERT A. JACK

DAVID V. MAHAN

Cleveland

SUPERIOR 1-1291

GEORGE C. CUTLER

THOMAS V. JOHNSON

Chicago

STATE 2-6916

JAMES D. THOMAS

Tucson

6-3698

R. PAYNE WETTSTEIN

Los Angeles—DUNKIRK 8-2286

San Francisco—YUKON 6-2522

Portland—CAPITOL 8-4107

Published monthly by Keeney Publishing Company, 6 N. Michigan Ave., Chicago 2, Ill., U.S.A. Copyright 1956 by Keeney Publishing Company.

President and General Manager—  
CHARLES E. PRICE

Sales Promotion Manager—JOHN H. REOCK

Production Manager—L. A. DOYLE

Circulation Director—FRANK S. EASTER



ABP . . 1906-1956 . . Fiftieth  
year aiding business progress

Member of Audit Bureau of Circulations,  
Magazine Publishers Association, Inc., and  
Associated Business Publications

Yearly Subscription Price—U.S. and possessions, \$3.00; Canada, Cuba, Mexico, South America, Central America, \$4.00; Others \$6.00. Single copies, U.S. and possessions, 35c. Back numbers, 60c. January, 1956, Directory Issue, \$1.50 per copy. *Change in Address:* Report new and old address to publisher and local post office; deadline date 18th of preceding month. Entered as second-class matter, July 29, 1932, at the post office at Chicago, Illinois, under the Act of March 3, 1879. Additional entry at Mendota, Ill.

*Capacity-wise...*

*Performance-wise*

*Price-wise...*

# YOU HAVE IT with *Luxaire*<sup>®</sup>

THE COMPLETE LINE

**EVERYTHING**  
for HEATING • COOLING  
**EVERY UNIT**  
a DELUXE UNIT at a  
DOWN-TO-EARTH PRICE

Today, your customers want better quality than ever before, but are unwilling to pay more for it.

This means you have to figure every job closer than ever before.

When you figure Luxaire, you not only come up with the quality desired, you also come out with a greater margin of profit.

There's good reason.

Excellent construction and outstanding performance have caused greater sales of the complete Luxaire line. High sales volume permits efficient manufacturing. Manufacturing efficiency provides competitively low prices.

So when you choose the capacity and type of unit needed from the complete Luxaire line, you gain both quality and profit—plus the extra bonus of easy installation and service-free operation.

Call your Luxaire jobber now.



Baseament Type  
Winter A. C. Unit  
Burns Gas or Oil



Utility Room  
Type Winter  
A. C. Unit  
Burns Gas  
or Oil



Counterflow  
Winter A. C.  
Unit Burns  
Gas or Oil



Horizontal Furnace  
4 Gas Sizes  
4 Oil Sizes



Gravity Furnace  
Burns Gas or Oil



Gas Conversion  
Burner



Oil Conversion  
Burner



Gas Unit  
Heater



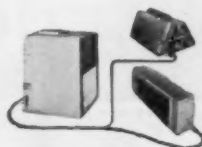
Air or Water  
Cooled 2 or 3 Ton  
Basement-Utility  
Year 'Round A. C.  
Unit Burns Gas  
or Oil



Air or Water  
Cooled 2 or 3 Ton  
Counterflow  
Year 'Round A. C.  
Unit Burns Gas  
or Oil



Water Cooled  
5 Ton  
Year 'Round A. C.  
Unit Burns Gas  
or Oil



Air Cooled Add-On  
2, 3 or 5 Ton Summer  
A. C. Unit  
Compressor-Condenser Unit  
with Matching "V"-type or  
"Flat"-type Cooling Coil



Water Cooled Add-On  
3 or 5 Ton  
Summer A. C. Unit

THE C. A. OLSEN MANUFACTURING COMPANY • ELYRIA, OHIO  
*Luxaire* HEATING & AIR CONDITIONING UNITS

## the editor's notebook

### Thumbing Through This Month's Artisan

... we note the enthusiastic response of builders and prospective home buyers to a local level movement to improve heating and cooling installations as *Certified Heating-Cooling Gains Momentum* in the Cleveland area. We follow the procedure used by the Cuyahoga County Sheet Metal Contractors Association for getting the program off the ground and we visualize the long range results which can come from such a program, not only in improvement of installations and minimization of price cutting problems, but also in providing dealers with an excellent sales key to open the door of the profitable housing project market. After watching the program unfold in this report on the mechanics of setting up such a program, we visit a dealer to see how *He Put Certified Heating to Work . . . and Clinched Future Project Sales*. Here we see a sample of the reception such a program will get from project builders who are shown the added appeal the certified heating stamp can have in the eyes of home prospects who unquestionably are interested in the benefits of controlled comfort.

### Condenser

... we find out how *Condensing Unit Maintenance Cuts Operating Costs* through an enlightening comparison of the operation of a standard cooling unit with that of a simple boiler-radiator system. Author S. W. Reid emphasizes the important role played by the condensing unit in the total efficiency of the cooling system

## INCREASE EQUIPMENT SALES ...cut down delivery costs

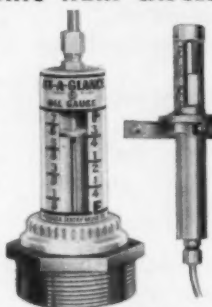
Sentry ODF Tank Gauge tells drivers what they want to know  
*at point of delivery!*



### ONLY *Sentry* OFFERS SUCH A COMPLETE LINE OF DIRECT AND REMOTE READING TANK GAUGES

Above is SENTRY'S newest — The ODF At-A-Glance tank gauge that's setting new records in building sales and customer goodwill. Located outside of building at fill pipe, this easy-to-read weather-proof gauge shows the exact oil level in the indoor tank. Saves costly time consuming trips to basement, unnecessary hose unreeling and eliminates over-flow. Permits delivery without disturbing customer.

Other constant-register SENTRY gauges include combination tank and remote reading, barrel gauges, direct reading, and gauges for stove and space heater tank. Write today for full information about these fast moving business getters. Advertising aids available.



Combination At-A-Glance tank and remote reading gauges



Sentry stove and space heater gauges



Sentry At-A-Glance barrel gauges



Sentry At-A-Glance tank gauge



Sentry superior quality Thermo-Gauge



On guard—24 hours a day

**KRUEGER *Sentry* GAUGES**  
GREEN BAY • WISCONSIN

## the editor's notebook

(continued)

and directs the discussion toward correcting a condition caused by fouling of the condenser tubes. Presented to help dealers develop an understanding of condensing unit performance to help set servicemen on the right track, the article discusses the cooling properties of the common refrigerants and traces their paths through the cooling system, explaining what happens at each point and defining the operations of the cooling coil, compressor and condenser.

### Maintenance

... and we note that thoroughness in *Preventive Maintenance Means Fewer Service Calls*, in addition to notable improvement in customer relations, leads for future equipment sales and savings in manpower. Author Miles M. Mills stresses the importance of complete analysis of the heating equipment on regular checkups and on service calls, and shows how an established preventive maintenance program can pay off for a heating dealer in time, money and customer confidence. We are shown a sample of a comprehensive inspection report form and told how it can be used. The author also urges dealers to impress servicemen with the importance of their work in order to improve thoroughness and to take advantage of opportunities to further the cause of customer relations.

### Joint

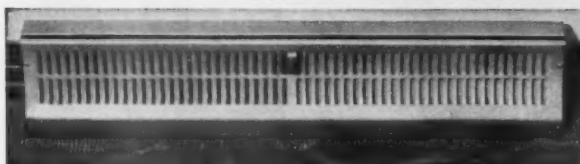
... and we see how a new *Metal Expansion Fold Weatherproofs Curtain Wall Panel Joints*. Author Henry E. Voegeli describes the deep drawn expansible metal joint which, inserted





# MIDCO again *Rings the Bell*

HERE'S THE REGISTER THAT PROVED MIDCO SUPERIORITY

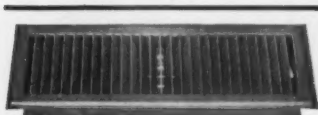


NO. 900 OPEN TOP DIFFUSER



NO. 905 CLOSED TOP DIFFUSER

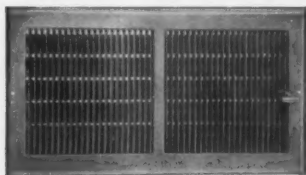
HAS MORE FREE AREA AND BETTER DIRECTION OF AIR  
THAN ANY SIMILAR REGISTER OF ITS SIZE ON THE MARKET



**No. 512 PERIMETER FLOOR REGISTER**

Sizes:

2 1/4 x 10    4 x 10    6 x 10  
2 1/4 x 12    4 x 12    6 x 12  
2 1/4 x 14    4 x 14    6 x 14



**No. 30 1/4" VERTICAL FIN SIDEWALL DIFFUSER**

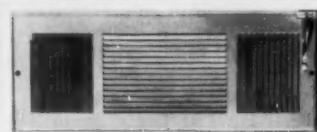
Sizes: 6x4 to 30x10

NO. 900 OPEN TOP		NO. 905 CLOSED TOP		LIST PRICE BOTH MODELS
LENGTH	FREE AREA Sq. in.	LENGTH	FREE AREA Sq. in.	
17"	30	17"	26	\$5.40
24"	43	24"	38	6.85
30"	54	30"	47	7.35
36"	65	36"	56	7.95

Prices subject to standard Dealer Discounts

## THE NEW MIDCO *Thermo-Flex*

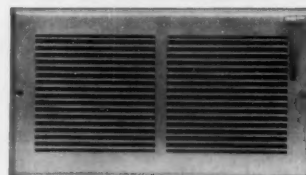
Multiple Deflection  
Commercial Grilles



**No. 80 PERIMETER SIDEWALL DIFFUSER**

Sizes:

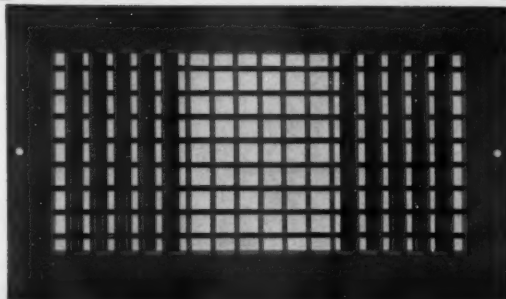
10 x 6                      12 x 6  
12 x 4                      14 x 6



**No. 20 HORIZONTAL FIN SIDEWALL DIFFUSER**

Sizes: 8x4 to 30x8

THERMO-FLEX double deflection grilles for Commercial, Industrial or Residential. Aero dynamically correct vanes, 11/16 inches in depth give perfect alignment and absolute control of flow and throw.



THERMO-FLEX features perfectly smooth corners and completely adjustable front and rear vanes. Made in 4x4 to any size desired. Write at once for complete chart and price list.



# MIDCO

REGISTER CORPORATION  
1059 GRAND AVE. ST. PAUL 5, MINN.

Makers of over 6000 different register units

## the editor's notebook

(continued)

at the corner intersection of panels, serves the double purpose of sealing the joint against wind and water infiltration and permitting expansion and contraction of the panels without distortion. A diagram shows how the thin copper fold is inserted and welded in place.

### Now Prospective Home Buyer Can Go To School

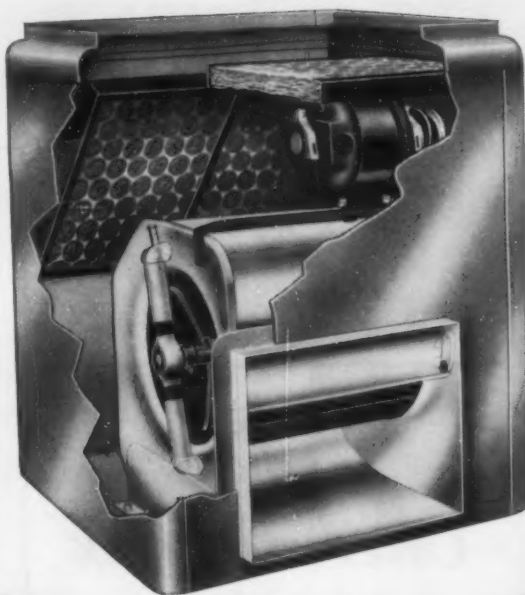
SALES PROMOTION people have been holding schools for this and schools for that to influence buyers to favor a particular product. But now a really important school has been developed by the National Housing Center, sponsored by the National Association of Home Builders. This school is the "School for Home Buyers" and will be duplicated across the entire country, from coast to coast and border to border.

The school is designed to help people select a house that will fit their needs. Thomas P. Coogan, Chairman of the Housing Center's Board of Directors, says, "As has been often said, but not said loudly enough or strongly enough, buying a home is the largest single financial transaction that most people ever make in their lives. Too many people buy homes on the basis of very hazy decisions, yet these decisions will affect their lives for years to come.

"There is a need in the land for sound, authoritative information on how to buy a home. Every housing organization, whether private or governmental, is constantly besieged by people who want to know what constitutes a well-designed home."

Various styles of home design, good layout, orientation of various rooms and

## THE MOST **PROFITABLE** FORCED-AIR CONVERSIONS ARE MADE WITH **REX AIR-PAK BLOWER-FILTERS**



Switch to **REX** for...

- COMPLETE PACKAGE UNITS
- EASIER INSTALLATION
- EXTRA QUIET OPERATION
- SIZES FOR EVERY NEED
- FEWER, COSTLY CALL-BACKS
- BETTER CUSTOMER RELATIONS

**WRITE** for the profitable story about YOUR market for Rex Air-Pak.

**REMEMBER...** if it's an Air Controls' Product, it's made to make you money!

## AIR CONTROLS, INC.

Division of the Cleveland Heater Co.

2310 SUPERIOR AVE. • CLEVELAND 14, OHIO

## the editor's notebook

(continued)

the entire house, and how to choose a good heating system are among the topics discussed. Local heating dealers can not only contribute to this program when the school is held in their communities but can place themselves in a position to uncover some desirable sales leads.


The schools will be held during evening hours, two hours to each of four meetings. At the end of the lecture sessions, a question and answer period will be held.

### Zoned Heating Item Good Publicity

RECENTLY I noticed in the home section of one of the Chicago daily newspapers an editorial on the use of zone heating systems. The advantages of such systems were pointed out and prospective home builders were advised to consider this means of controlling air delivery. The editorial impressed me because it took for granted that new house buyers were thinking only of warm air heating systems for their homes. The ability of the sales promotion man who influenced the editor to publish the newsworthy items was clearly discernible. I believe we need more of this type of publicity; it keeps the public informed on the newer trends in the industry and helps to overcome the "Sally Rand" systems. (A Sally Rand system is one that has been stripped to bare necessities.)

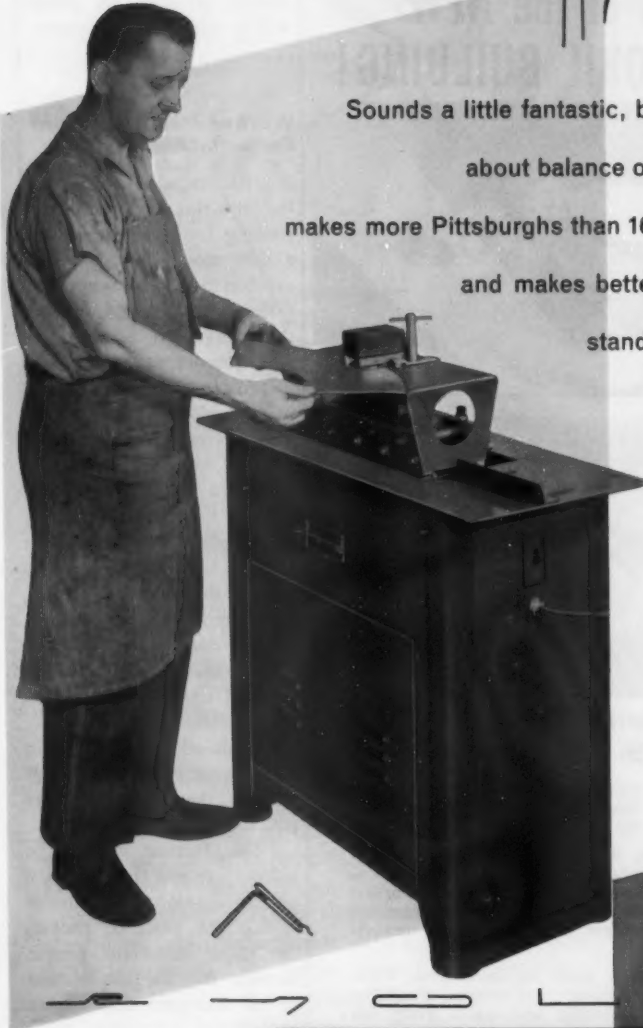
### Research Center to Look Into Farm Comfort

ON OCTOBER 3, Secretary of Agriculture Ezra Taft Benson spoke at the opening of a research center and model farm near Huntley, Ill. One of the objectives of this pro-




DOUBLE YOUR  
PAYROLL...and  
DOUBLE YOUR  
FLOOR SPACE...and  
WORK BOTH DAY and  
NIGHT SHIFTS....

OR...  
GET  
A  
**Lockformer**



Sounds a little fantastic, but the two alternate suggestions just  
about balance out. For one man with a Lockformer actually  
makes more Pittsburghs than 16 men working with 8 brakes . . .  
and makes better locks, to boot. Double Seams (Acme),  
standing seams, flanges and drive cleats are made  
with comparable speed and economy.

Lockformer makes a complete line of  
sheet metal roll-forming equipment—  
machinery which lops thousands of  
dollars a year off the average shop's  
labor costs. Ask for your free copy  
of the new Lockformer catalog A-56



One man with a Lockformer makes more Pittsburgh Locks  
than 16 men with 8 brakes

**THE LOCKFORMER CO.**

4615 WEST ROOSEVELT ROAD,

CHICAGO 50, ILL., U.S.A.

## the editor's notebook

(continued)

gram is to improve farm living comfort. The non-profit research center will be under the guidance of several agricultural colleges and its founder, Neil C. Hurley, Jr., president of Thor Power Tool Co.

This research will investigate ways that will make it possible for old farm houses to be made more useful and more comfortable. This is a sizable market for the heating and cooling industry to keep an eye on.

### ohi Publicity Benefits Dealers

OPERATION Home Improvement has been getting a big response in the Los Angeles area. At the recent 11 day 1956 Home Show there were over 60,000 inquiries received about financing and equipment. Furnace dealers received many of these inquiries. A contest, with a water heater as a prize, helped to encourage prospects to participate in the ohi program.

### What's Been Happening To Your Annual Profit?

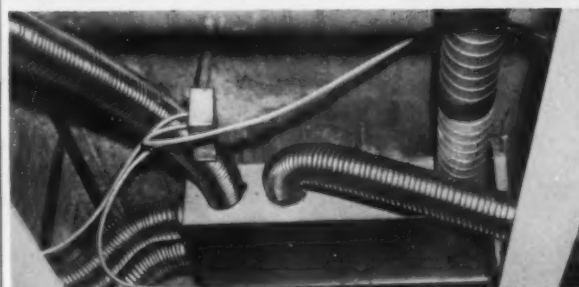
HAVE YOU been wondering what is happening to the annual profit you've been expecting? Here is one possible clue which was uncovered recently by Industrial Psychology, Inc. Reporting on personnel costs, IPI said:

"The salary paid an employee is only one aspect of a company's personnel overhead. Recent figures on hiring and training costs, turnover, capital investment per employee, guaranteed annual wage, the new minimum wage, and fringe benefits indicate that payroll alone cannot be taken as the full measure of personnel costs.

"Yearly cost figures for a



## OVER 8 MILES of WIREMOLD flexible AIR DUCT installed in the NEW SOCONY-MOBIL BUILDING!



### Hours of installation time SAVED with Wiremold Air Duct

It is estimated that over 8 miles (46,440 lineal ft.) of Wiremold flexible Air Duct was used in the air conditioning installation at the Socony-Mobil Office Building.

The modular ceiling idea permits easy and fast relocation of partitions, lighting fixtures and air diffusers. Wiremold flexible Air Duct made the flexibility in air distribution possible. Thus the Socony-Mobil Building can handle frequent tenant changes without expensive renovation costs.

No matter how large or small the installation, Wiremold Air Duct's "easy handling" and extreme flexibility effects a substantial time saving and makes every job adaptable to varying requirements.

Visit us at Booth 213 at the 13th I H and A C Exposition



## the editor's notebook

(continued)

clerk or semi-skilled worker run close to the following: salary or wages, \$3000; training investment in the newly hired, \$500; turnover (based on loss in training investment in one out of every three employees hired), \$150; capital investment depreciation per employee, \$450; fringe benefits, \$740. Total, \$4840. The company must have production commensurate with this outlay, or soon its picture will be more loss than profit."

### Worker Most Important Factor in Automation

AUTOMATION is slowly moving into the sheet metal fabricating field. Recently I saw a new model of a machine capable of performing 18 different operations without the changing of a single die. The journeyman who used this machine did not feel that it was replacing any workmen, but rather expressed the point of view that it made it easier to do the necessary work.

To support this point Louis J. Lundborg, vice president of the Bank of America, told a group of engineers:

"Automation is increasing, not decreasing, the importance of the human factor in production.

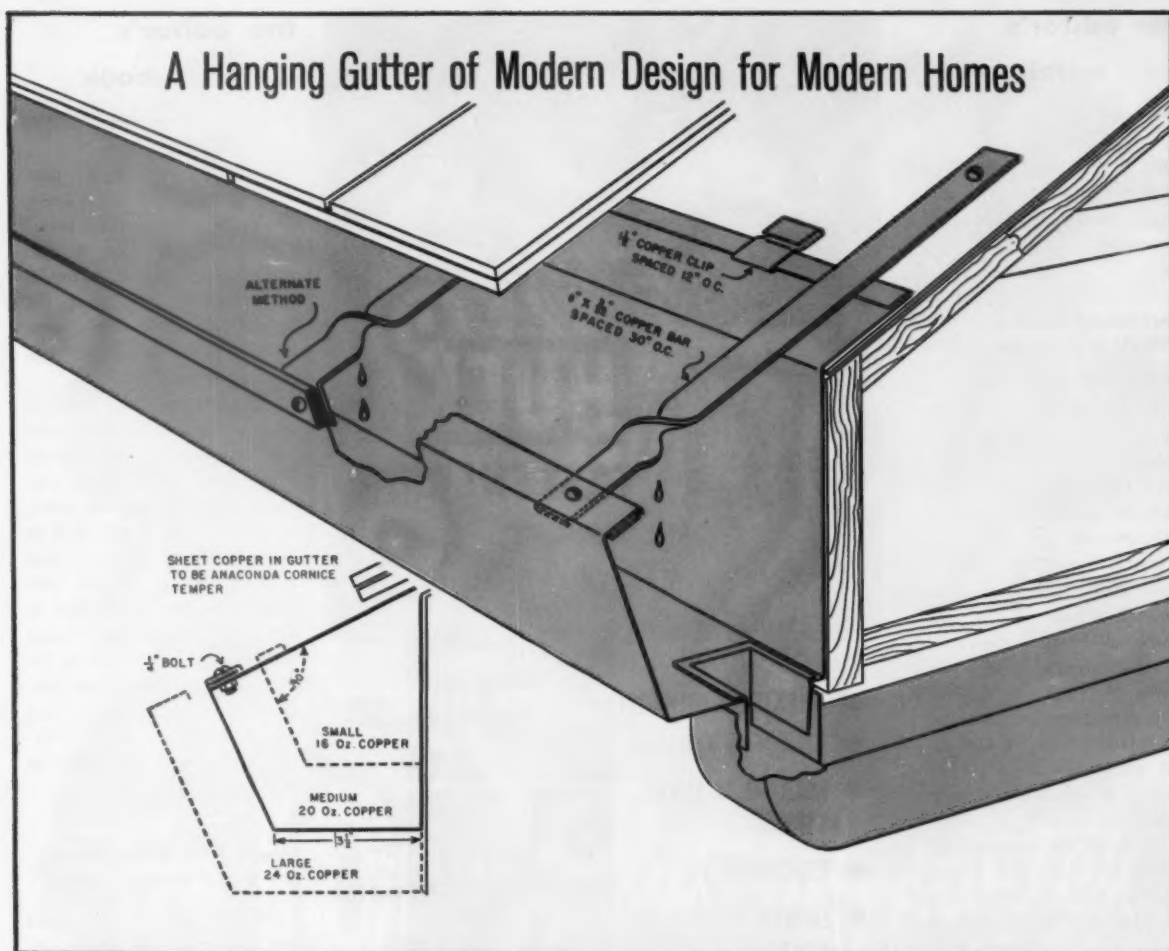
"With all the progress in engineering and the physical sciences, the human factor is still the most important.

"The further we go in automation and the faster we go in developing machines to take the place of people, the more important people become. But the people must be of a higher and higher order."

He pointed out that men were easy to replace when their tasks were simple or menial, "but as machines have raised the level of hu-



## A Hanging Gutter of Modern Design for Modern Homes



Here's one way to make a hanging gutter match the clean, simple lines of modern house design

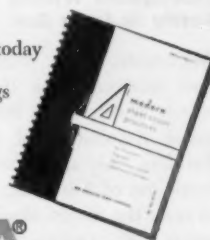
Contemporary house design calls for a new kind of hanging gutter. The drawing shows a copper gutter which can be easily formed on regular sheet metal shop equipment and has the straight lines and plain surfaces most suited to today's style of house design.

The gutter, being copper, can be set dead level and is installed tightly against the building or overhanging cornice. It is formed so that the apron has the same pitch as the roof and so that the outer edge is in line with the roof slope. If painted, it will appear to be an integral part of the house construction.

Note that two ways are suggested for forming the outer edge and reinforcing it with a copper bar. The gutter is supported by copper clips at the apron edge, and the outer edge of the gutter is held in line by copper bars; each bar is fastened to the roof at only one point. This method allows the gutter to move freely longitudinally during expansion and contraction of the metal. The inset detail shows copper sheet thickness recommended for three common sizes.

Copies of this drawing with suggested specifications are available on request. Ask for Modern Gutter Detail.

**DO YOU HAVE THIS NEW BOOK?** Send today for your free copy of "Modern Sheet Copper Practices"—104 pages of drawings and suggested specifications.



for better sheet metal work

# ANACONDA<sup>®</sup> COPPER

The American Brass Company, Waterbury 20, Conn.  
In Canada: Anaconda American Brass Ltd.,  
New Toronto, Ont.

Please send "Modern Sheet Copper Practices" ☐  
Modern Gutter Detail ☐

NAME.....  
COMPANY.....  
STREET.....  
CITY.....ZONE.....STATE.....

## the editor's notebook

(continued)

man activity, the people competent to be masters of those machines have been at a premium."

### Increased Sales a 'Must' in Business

WHAT DO YOU THINK of this statement by Richard Sanzo, staff analyst for Dun's Review and Modern Industry? He says, "Sales expansion is an absolute must for business. A company which is content to 'level off' for any prolonged period had better order a burial plot, for it is headed for a slow death. Middle and small-sized business, caught in a cost-price squeeze, recognize increased inventory and capital turnovers as their only chance to offset shaded profit margins."

It backs up the old saying about not being able to stand still in business. You've got to plan for the future and move ahead constantly if you don't want someone moving ahead of you on every job.

### Inadequate Wiring Costly in Long Run

ACCORDING to a recent report received from the Research Institute of the National Association of Home Builders, only about one new house out of 5 is being wired to meet the electrical requirements of families today. Prospects for add-on cooling systems know the extra costs involved in providing the power requirements. If people can be sold cooling systems along with the heating equipment, considerable savings are possible at the time the house is being constructed. This is a strong sales point for those who want cooling from the day they move into their new house but feel that

*Specify*  
**HUCK**  
**FASTENERS**  
*for:*  
● **FASTER, EASIER  
INSTALLATION**

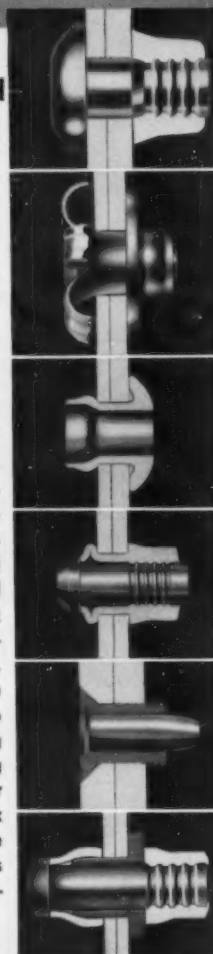
- **GREATER STRENGTH**
- **UNIFORM TENSION**
- **MAXIMUM SHEAR  
STRENGTH**
- **PRECISION FIT**
- **LOWER INSTALLED  
COST**

Huck permanent fasteners are available in many types, shapes and sizes, from 3/32" to 1/2" diameter, to meet the requirements of all types of manufacturers from railroad cars, trailers, buses, ships, blowers, appliances, to farm equipment and prefab buildings. These and many other users specify Huck fasteners for reasons of economy, speed of application, strength and dependability. You too, may find the answer to faster, better, cost-cutting assembly by investigating Huck's advantages. Write for literature, or ask for a Huck Sales Engineer who will be glad to explain the advantages of Huck Fasteners in your product. No obligation.

**HUCK**

MANUFACTURING COMPANY

2480 Bellevue Avenue • Detroit 7, Michigan



CL—  
Commercial  
Huckbolt

DR—  
Daisy  
Blind Rivet

PT—  
Pull-Thru  
Blind Rivet

OS—  
Oversize  
Structural  
Blind Rivet

DEUTSCH—  
Drive-Pin  
Blind Rivet

BL—  
Blind  
Huckbolt

## the editor's notebook

(continued)

they can postpone its purchase for two or three years, "until they get on their feet."

The report puts it this way: "Sooner or later inadequate wiring will cost the buyers of this year's new houses more than \$100 million to correct."

"It costs so much more to add later on that home buyers are penny wise and pound foolish not to insist on adequate wiring from the start, even if it should add \$50 or even more to the first cost of their home; it will save them a lot more than that in the long run. In fact, home buyers would be smart to demand wiring more than adequate for today's uses, for ten years from now the average house will use twice as much current as now."

### Lower Fuel Rates Seen For Gas Powered Units

THE GAS UTILITY companies are showing considerable interest in the residential cooling industry. Several new products in various stages of development plus those already on the market indicate that gas powered equipment will show a rapid growth during the next 10 years. In a recent report from the Northern Illinois Gas Co., the search for natural underground storage facilities was outlined.

The storage facilities would make it possible to provide more gas for the 165,000 applicants on the waiting list for residential gas heating and would also be responsible for very favorable rates for gas powered cooling equipment.

*Clyde M. Barnes*

EDITOR



# The 100% Shut-off Switch

The new No. 852A Baso® switch offers electric ignition, automatic main valve operation, and complete shut off for a control system operating on either low or line voltage. Push down the reset button, hold for thirty seconds, and release. Your appliance is lighted and the Baso thermo-electric automatic pilot is watching over pilot and main burner gas, ready to shut off all gas if the pilot flame goes out.

In one, compact unit this switch provides

Baso Automatic Pilot ● Rotor Pilot Valve ● Complete Gas Shut-Off  
Safe Lighting ● Electric Igniter Switch\* ● Pilot Gas Filter\*  
Pilot Gas Adjustment

*\*Switch may be had without this feature.*

Find out more about this multipurpose unit and the sales points it can add to your appliance.

**MILWAUKEE GAS SPECIALTY CO.**  
Dept. AA-4, Milwaukee 1, Wis.



It's great to be COMFORTably fixed!



...and comfort is a major sales advantage of *Capitolaire* Winter Air Conditioners

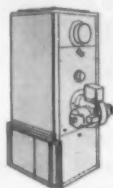
It's easy to see why the efficient line of Capitolaire Winter Air Conditioners provide sales assets that are readily accepted and valued in both residential and commercial fields.

These rugged, thoroughly dependable units are designed to give years of trouble-free heating comfort with maximum fuel economy. With Capitolaire Winter Air Conditioners, owners will enjoy: PLEASANT, HEALTHFUL TEMPERATURES  
CLEAN HEAT • LOW COST FUEL CONSUMPTION • AUTOMATIC OPERATION  
LONG TROUBLE-FREE SERVICE • COMPACT SIZE • ATTRACTIVE DESIGN

*Complete line of gas-, oil- and coal-fired furnaces for home and industry*



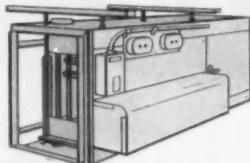
**LO-BY**  
Fully automatic . . . compact, clean, trouble-free . . . for basement installations . . . gas, oil or coal-fired up to 250,000 Btu/Hr. input.



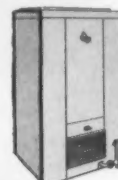
**HI-BY**  
Completely automatic . . . gas or oil-fired . . . designed for minimum space . . . ideal for small homes . . . can be installed in closet or utility room . . . up to 125,000 Btu/Hr. input . . . lower cost models available in popular sizes.



**COUNTERFLOW**  
For basement homes . . . ideal for perimeter system . . . gas or oil-fired . . . can be installed in closet . . . economy models also available . . . up to 105,000 Btu/Hr. input.



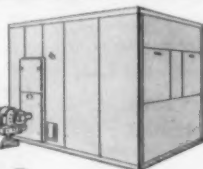
**HORIZONTAL**  
For installation in attic or crawl space . . . compact, fully automatic . . . gas or oil-fired . . . up to 135,000 Btu/Hr. input . . . popular sizes available in economy models.



**GRAVITY**  
Deluxe cabinet, compact unit . . . for gas or oil-fired . . . round case coal-fired models . . . for automatic or hand-firing . . . pipeless models.

#### HI-CAP

For industrial or commercial heating . . . gas, oil, stoker, or hand-firing . . . attractive, ruggedly built . . . capacities from 330,000 to 1,000,000 Btu/Hr. . . suspended models available.



*Capitolaire*

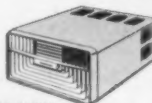
Write for complete information.

Sales  
offices in  
principal  
cities



**National - U.S. Radiator**  
CORPORATION

#### COMPLETE LINE FOR SUMMER AIR CONDITIONING



**WINDOW**  
Deluxe model . . . thermostatically controlled . . . flush mounting . . . clean, fresh circulating air . . .  $\frac{3}{4}$ , 1, 1 $\frac{1}{2}$  HP capacity.



**RESIDENTIAL**  
3 models . . . water-cooled . . . air-cooled remote condenser . . . remote evaporator—air-cooled condensing unit . . . 2, 3, 5 ton capacity . . . for summer home comfort.



**COMMERCIAL**  
Self-contained . . . for stores, offices, commercial buildings . . . quiet operation . . . cools, heats, dehumidifies, filters, circulates, ventilates . . . 3 through 60 HP capacity.

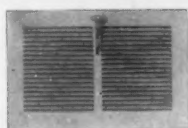
HEATING AND AIR CONDITIONING DIVISION  
Johnstown, Pennsylvania



*sure signs of indoor comfort!*

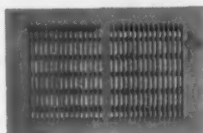
# Standard Registers & Grilles

*... for custom control of  
warm air heating*



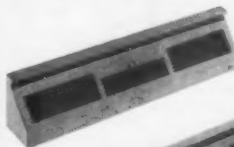
#41 H  
WALL

**SINGLE DAMPER FORCED AIR REGISTERS**

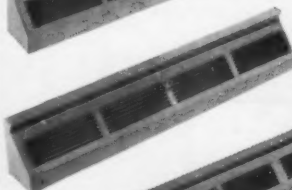


#331  
WALL

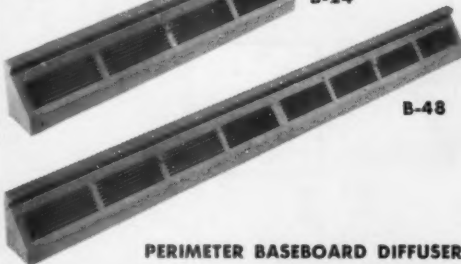
**MULTIPLE VALVE SIDEWALL & BASEBOARD REGISTERS**



B-18



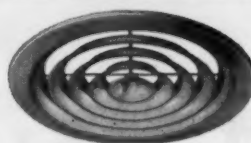
B-24



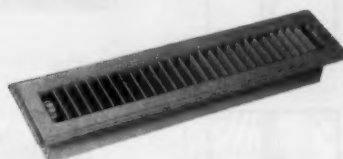
B-48

**PERIMETER BASEBOARD DIFFUSERS**

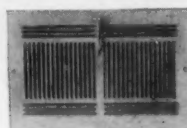
*... for uniform, year-around  
heating and cooling comfort*



**CEILING AIR DIFFUSERS (flush and extended)**



**PH SERIES PERIMETER FLOOR REGISTERS**



#551  
WALL

**PERIMETER BASEBOARD REGISTER NO. 551**



**CF-5 PERIMETER  
BASEBOARD REGISTERS**

Also: return air grilles, baseboard and sidewall intakes, air cond. and ventilating returns, door grilles, floor registers, cold air faces, frames, ornamental metals.

**Install Standard Registers and Grilles on every job to save time and increase customer satisfaction.**

**STANDARD STAMPING**

*... first in engineering  
for indoor comfort!*



Mail the coupon  
today for new  
**FREE catalog!**

**Standard Stamping & Perforating Co.**  
3137 W. 49th Place, Chicago 32, Illinois

Gentlemen: Please send me your new catalog showing the complete line of Standard Stamping Registers and Grilles.

Name

Company

Address

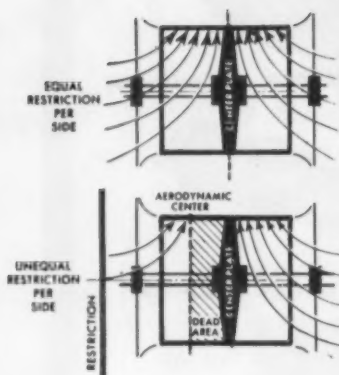
City  Zone  State

# 7 WAYS

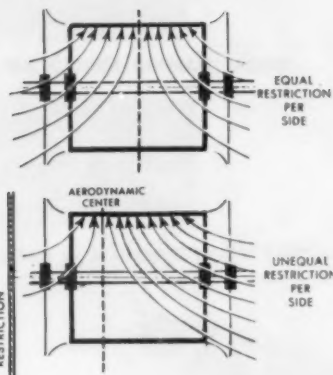
## MORRISON END SUPPORTED WHEEL

1

### MAXIMUM UTILIZATION WITH END SUPPORTED WHEEL

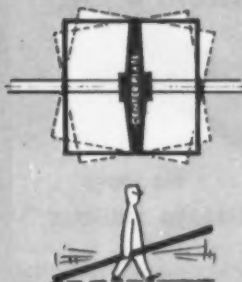


When inlet conditions are unrestricted, the aerodynamic center is in the exact geometric center in both Morrison End Supported wheels and center plate wheels. BUT — when one inlet of the blower is more restricted than the other, the aerodynamic center in a Morrison End Supported wheel, moves toward the restricted side permitting greater utilization of the unrestricted side as illustrated. In a center supported wheel, the restricted side of the blower is starved and the unrestricted side is unable to compensate for it.

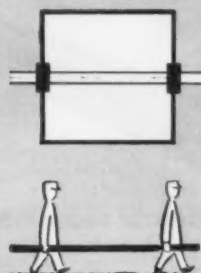


2

### STABLE SUPPORT WITH END SUPPORTED WHEEL

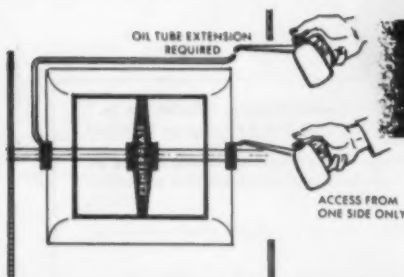


Morrison End Supported Wheels are mounted stably on the shaft, eliminating rocking action that causes wheel wobble.

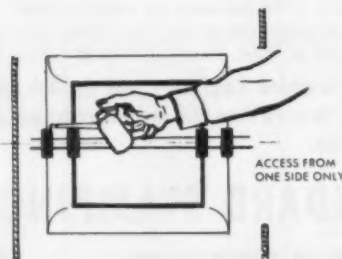


3

### EASY MAINTENANCE WITH END SUPPORTED WHEEL

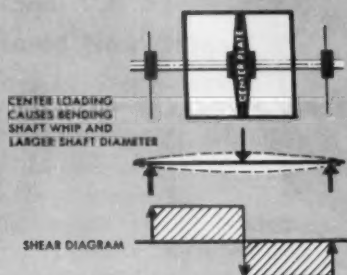
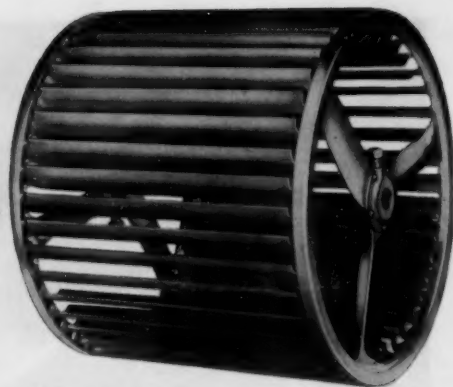


With Morrison End Supported Wheel, oiling is easy. You oil one end — and as the drawing shows — reach through the wheel to oil the other end. No complicated tube extension is necessary.



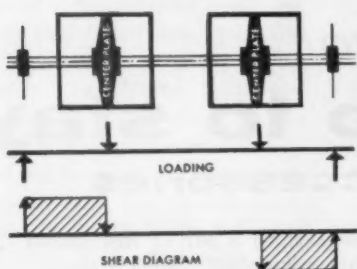
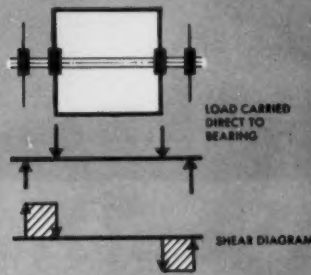
## MORRISON PRODUCTS, INC.

# BETTER!



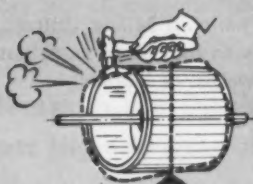
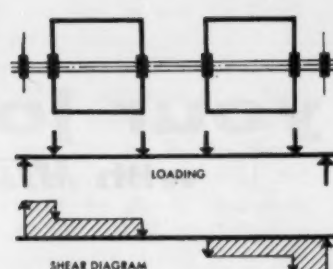
## 4 MINIMUM SHAFT LOADING WITH END SUPPORTED WHEEL

Morrison End Supported Wheel relieves strain as load is carried directly to bearings. There is no shaft whip. Center Plate Wheels put added strain on the shaft, causing bending, shaft whip and require larger shafting.

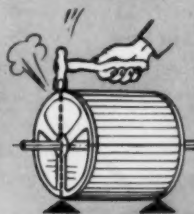


## 5 UNIFORM DISTRIBUTION (for Twin Blowers) WITH END SUPPORTED WHEEL

Uniform distribution of load allows using smaller shafting. Heavy concentrated load causes shaft whip and larger shafting.

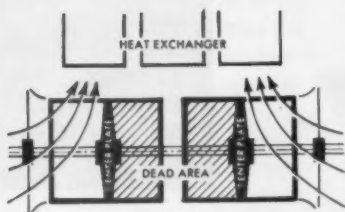


## 6 STRONGER FRAME WITH END SUPPORTED WHEEL



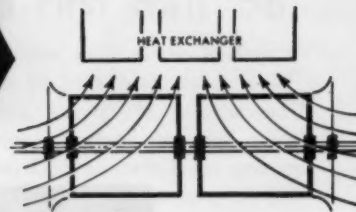
In the case of Morrison End Supported wheel, impact on the end of the wheel is directly supported by sturdy end rings.

Impact on end of center plate wheel lacks sturdiness and distortion results. Aids safe shipment.

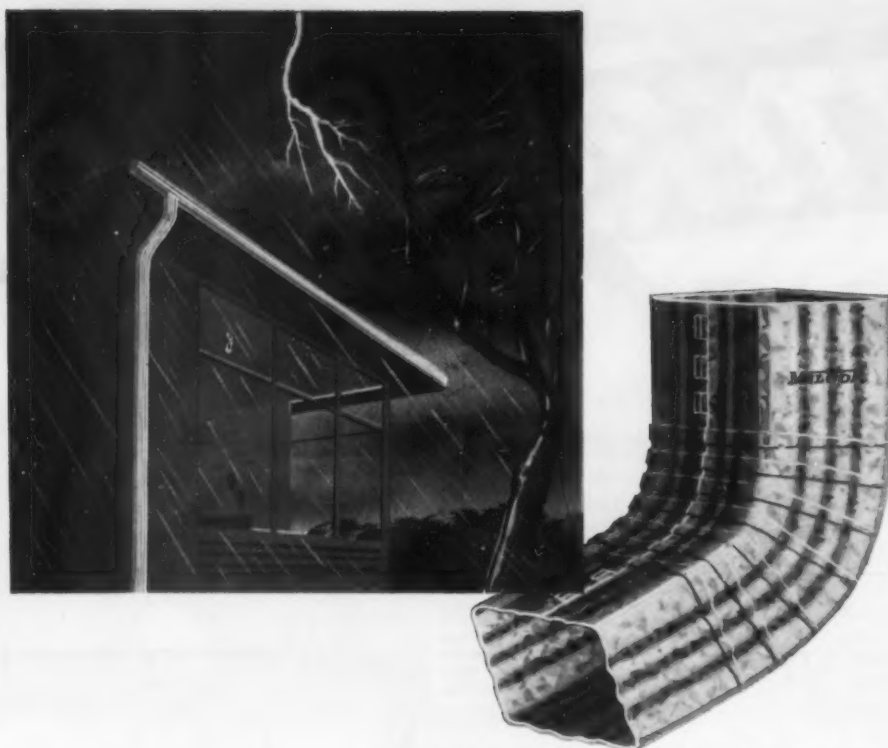


## 7 EXTRA WHEEL ADVANTAGES WITH END SUPPORTED WHEEL

In special applications of two wheels for wide air distribution, the attached drawing shows plainly the greater distribution of air possible with the End Supported Wheel.



**16816 Waterloo Road • Cleveland 10, Ohio**



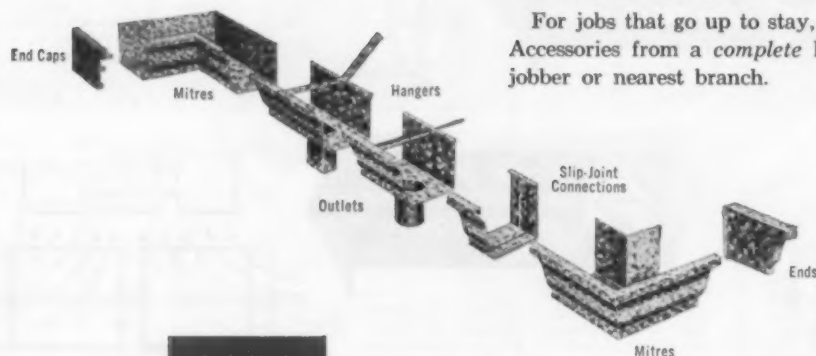
*Let it blow — let it storm!*

## **your jobs are up to stay** with **MILCOR®** Gutter and Accessories

You can stake your reputation on a Milcor installation. Because every Milcor product is precision-made of tough galvanized steel...made to last...made to stand up under the pressure of downpours, ice, or strong winds.

It's easy to get a sturdily erected job with Milcor Gutter and Accessories. Each part fits snugly to the others, stays put, and keeps its shape even under the weight of ladders!

For jobs that go up to stay, choose Milcor Gutter and Accessories from a *complete* line. Prices available from your jobber or nearest branch.



Milcor — the  
complete line of  
gutter, conductor  
pipe, elbows, and  
accessories.



### **INLAND STEEL PRODUCTS COMPANY**

DEPT K, 4023 WEST BURNHAM STREET • MILWAUKEE 1, WISCONSIN  
BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DETROIT  
KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW YORK • ST. LOUIS

S-146





## ohi Seal for '57 Features New Slogan

A TOTAL of 30 manufacturers and other interests in the home improvement field have agreed to help underwrite the extension of Operation Home Improvement into 1957, according to ohi executive director John R. Doscher. "Many of those who have been quick to support the 1957 budget were among the underwriters of ohi's first fiscal year," Mr. Doscher said. "They have found that their support of ohi has paid big dividends." In addition, he pointed out, there are a number of new sponsors who had not previously supported ohi financially. These include Armstrong Cork Co., Celotex Corp., Insulite Div. of Minnesota & Ontario Paper Co., National Gypsum Co., Republic Steel Corp., Ruberoid Co., Temco, Inc., Tennessee Fabricating, United States Gypsum Co., and Wood Conversion Co.

## Interest in ohi Display Runs High at L.A. Show

OPERATION Home Improvement received wide acceptance in Los Angeles during the city's recent home show. More than 60,000 inquiries were received concerning improvement loans, planning and construction during the 11-day show.

As part of the show there was a contest which was centered around the home improvement idea. Entries in the contest still are being checked and winners will receive gas water heaters as prizes. Dealers cooperating in the project will receive a copy of the contestant list.

# NWAHACA Meets in Cincinnati Nov. 28-29

CONVENTION PLANS for the 43rd annual convention of the National Warm Air Heating and Air Conditioning Association have been completed. A program designed around the needs of the dealer will constitute an open forum for the industry in which all of its segments will be heard.

A panel of dealers representing Pittsburgh, Charlotte, N. C. and Cleveland will describe their experiences in organizing a local association, selecting a managing secretary, developing a local heating code and launching a local sales promotion program.

A sales session based around "Why People Buy Air Conditioning," "Humidity Benefits in Many Ways," "Selling to the Public" and "Be Ready to Sell" has been set up. Nationally known speakers who will cover these subjects are: Irving Gilman, Institute of Motivational Research; Everett R. Phelps, Wayne University; Robert D. Strickler, Lennox Industries Inc.; Lorin G. Miller, Michigan State University; and Arthur M. Weimer, Indiana University.

Market and profit potentials will be covered by John R. Doscher, Op-

### Convention Data

*Where*—Cincinnati  
*Hotel*—Netherland Plaza  
*When*—Nov. 28-29  
*Who*—Warm air heating and cooling dealers (members and non-members).

eration Home Improvement, Inc.; W. L. Dulle, E. E. Souther Iron Co.; and Randall A. Nelson, National Warm Air Heating and Air Conditioning Association.

Research data and how it can be used will be presented in a panel type forum. Heading the forum as moderator will be F. L. Meyer, Meyer Furnace Co. Assisting Mr. Meyer will be D. R. Bahnfleth, J. R. Wright and M. V. R. Rao of the University of Illinois.

Field research will be covered by C. W. Nessell, Minneapolis Honeywell Regulator Co., who will report on findings of the association's mobile laboratory and how this data can be used to improve comfort conditions for home owners whose systems are already installed.

## Small Firms Get More Help from SBA; 1290 Loans Approved in First Half '56

INCREASED HELP to small firms in obtaining access to adequate capital and credit, in selling their products and services to the government, and in obtaining competent management, technical and production counseling was reported by the Small Business Administration, Washington 25, D.C. in its sixth semi-annual report. Summarizing the activity of the agency during the first half of 1956, the re-

port points out that the lending activities of SBA have shown an increasing amount of help to small business. During the six month period, 1290 business loans were approved in a gross amount of \$51,644,869 to assist small firms, as compared with \$30,332,390 of business loans approved in the previous period.

(Continued on page 21)



**NEW and BETTER products  
to promote BIGGER and  
BETTER profits for YOU!**

During the past year we have made available all of the items mentioned below — evidence of the fact that H&C is constantly on the ball — developing new products and new methods to promote the means by which you may net bigger and better profits.

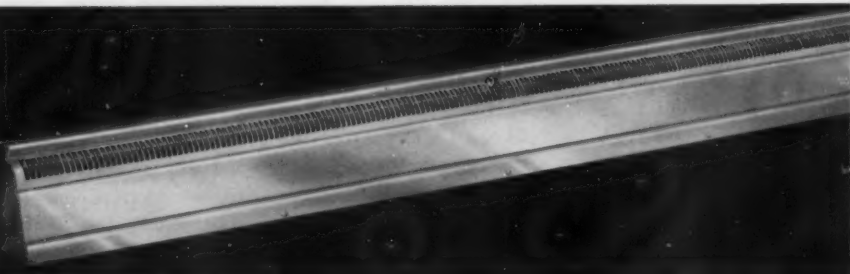
### **H&C TRIPL-AIRE® REGISTERS & GRILLES FOR COMMERCIAL INSTALLATIONS**

A thoroughly complete line providing every deflection, every element an installer could desire. 26 standard sizes, each in 10 combinations of horizontal or vertical face bars and louvers. Larger sizes up to 36" x 30" available.

**H&C FIXT-AIRE® RETURN AIR REGISTERS & GRILLES** Perfect complement to the TRIPL-AIRE line. You're well set with these lines to compete on all commercial jobs.

### **DECORATOR GRAY FINISH**

... selected by national color experts as most harmonious to the greatest number of interiors.

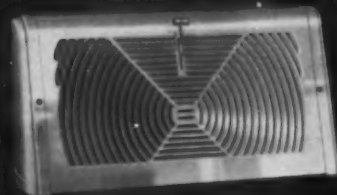


### **H&C NO. 46 DIFFUSAIRE® — Newest and finest for perimeter baseboard installation.**

Available in 2 and 4 ft. lengths for installation as individual units or continuous strips in multiples of above sizes. Exceedingly good-looking, efficient beyond anything you have ever experienced in this type of diffuser. Easiest of all to install because of its unique "Flexo-Flange".

### **TWO ADDITIONAL SIZES OF OUR HIGHLY POPULAR NO. 405 BASEBOARD REGISTERS**

... three in all: 10 x 6, 12 x 6, 14 x 6. They're mighty convenient and very efficient for installation in existing construction or where masonry walls are encountered.



30,000 Sq. Ft. ADDED FOR FINISHED STOCK ... to maintain for our customers the kind of service of which we are proud. All our efforts are constantly devoted to making H&C your preferred source of supply for registers, grilles and diffusers.

**HART & COOLEY MANUFACTURING CO.**  
**HOLLAND, MICHIGAN 500 E. EIGHTH ST.**  
IN CANADA: HART & COOLEY MANUFACTURING CO. • FORT ERIE • ONTARIO

## SBA Helps 1290 During Jan. 1-June 30 Period

(Continued from page 19)

Regarding SBA's procurement program, designed to help small firms increase their sales of goods and services to the government, the report said that more than 3900 proposed government purchases, involving an estimated expenditure of \$304,864,565, were reserved for award to small business concerns during this period, which was an increase of more than \$91,000,000 over the small business set-asides during the first six months of 1955.

In the field of assistance to small firms in obtaining competent management, technical and production counseling, SBA reported that during the six month period covered by the report, 2185 firms requested and were given information on various phases of product, process and market development.

## New Natural Gas Facilities Add 4400 Miles of Lines

NATURAL GAS PIPELINE facilities estimated to cost more than \$461,400,000 and designed to add more than 2¼ billion cubic ft of daily delivery capacity to the nation's individual transmission systems were authorized by the Federal Power Commission during the year ending June 30, according to Jerome K. Kuykendall, chairman of the commission.

The new facilities authorized during the 12-month period included nearly 4400 miles of pipeline and about 255,000 horsepower in compressor units, Mr. Kuykendall states. The figures include only those facilities authorized for interstate natural gas pipeline companies and do not include certificates issued to independent producers.

The major projects—those which cost \$700,000 or more—accounted for approximately \$444,000,000 of

## Wholesalers Schedule '56 Convention for Dec. 3-5

FINAL TOUCHES are being added to the 10th annual convention program of the National Heating and Air-conditioning Wholesalers, Inc. scheduled for Dec. 3-5 at the Deshler-Hilton Hotel, Columbus, O. The program is being slanted toward overcoming sales resistance encountered both by wholesalers' and dealers' salesmen.

Recommendations for advertising the industry's products at the local level and how to develop sales promotion programs that will help dealers are scheduled to be covered on Wednesday morning.

The business conference program inaugurated last year is to be repeated this year on Tuesday, begin-

ning at 11 a.m.

The convention program is as follows:

### Monday, Dec. 2

- 9:30 a.m.-Committee Reports
- Noon-Luncheon Meeting
- 2:15 p.m.-Wholesaler-Manufacturer Relationship
- 5:00 p.m.-Adjournment

### Tuesday, Dec. 3

- 9:00 a.m.-Committee Reports
- 11:00 a.m.-Business Conference Program
- 5:00 p.m.-Adjournment
- 6:30 p.m.-Cocktail Party
- 7:30 p.m.-Annual Banquet

### Wednesday, Dec. 4

- 9:00 a.m.-Wholesaler-Dealer Advertising Program
- 10:30 a.m.-Wholesaler-Dealer Sales Promotion Program
- Noon-Luncheon Meeting
- 1:30 p.m.-Upgrading Wholesalers' Salesmen
- 2:45 p.m.-Heating-Cooling Sales Promotion

Non-members are extended a personal invitation to attend this convention by Wilbur R. Bull, executive director of the association.

## 1000 Texas Families Get Air Cooled Units

ONE OF THE NATION's largest completely air conditioned housing developments — being built for nearly 1000 United States air force families at the Abilene, Texas air force base — will be equipped with air cooled summer air conditioners, according to Bruce D. Henderson, vice president of Westinghouse Electric Corporation's air conditioning division at Staunton, Va.

They're **ALL** in the *Gibson* line now!



# Plug in for Profits!



5-Ton Self-Contained  
Commercial Air Conditioner Installs quickly  
in 7.73 sq. ft. of floor space.

Gibson Refrigerator Company,  
Greenville, Michigan

Just what the dealer ordered—a complete heating and air conditioning “package” from the source that prices right and pays the profits! From Gibson you now get just what you need—and *only* what you need—for your customers. All Gibson units are engineered for easy installation and minimum service. Look over the list, then see your distributor about the promotional and other helps that Gibson gives you!

#### Residential Air Conditioning

2 - 3 - 5 ton units  
Air-cooled and water-cooled  
New attic units with prefabricated ductwork  
Remote air-cooled units 2 through 10 tons  
Packaged water-cooled units

#### Commercial Air Conditioning

Packaged units 2 to 40 tons  
All factory-assembled and tested  
Exclusive Gibson STRAT-O-VENT air circulation

#### Domestic Heating

Gas and oil-fired heating units  
Exclusive EVEN-FLO Vari-flame  
Complete line—Hi-Boys and Lo-Boys  
Year round air conditioning

#### Industrial Air Conditioning

Packaged direct expansion systems up to  
40 tons  
Packaged chillers  
Water-to-air and air-to-air heat pumps

**Gibson**<sup>®</sup> DIVISION OF  
**HUPP**  
CORPORATION  
*Temperature Experts for 80 Years*



# NOW!

HANDIEST WAY TO BUY AND STORE 16 OZ. ROOFING COPPER!  
CHASE ROLL COPPER IN CARTONS!



**PROTECTS CONTENTS FROM DAMAGE**

Edges of coil kept free from dents. Surface of coil remains unmarred. Coils stay round!

**NO ACCIDENTAL UNWINDING**

**SIMPLIFIES INVENTORY** B-I-G lettering on label quickly gives you all information needed to identify contents.

**EASILY STORED** Container is extremely compact.

**TOP QUALITY ROOFING COPPER, TRADEMARKED BY CHASE** You know this 16 oz. copper is clean, bright, perfect.

**SAFE EASY HANDLING** Recessed ends protect fingers. Cylindrical shape can be rolled or lifted easily.



**ALL STANDARD WIDTHS AVAILABLE** The Chase warehouse near you stocks containers of Chase 16 oz. roofing copper. Available either in standard 500 lb. crates, or on 2000 lb. skids from the mill.

# Chase

**BRASS & COPPER CO.**

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

*The Nation's Headquarters for Brass & Copper*

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury



for the

# 2

biggest sales-building ideas  
in residential and commercial  
air conditioning for 1957

Be sure and call your local  
Westinghouse Air Conditioning Distributor

**NOV. 18\***



Westinghouse Air Conditioning Distributors  
to get the big news at Hot Springs, Virginia!

\*Your local distributor will be at the exciting preview of the 1957 Air Conditioning Line during the week of November 11th to 16th. When he returns home on the 18th he'll have the BIG NEWS for you—no matter where you sell. There will be many new sensational air conditioning units, custom-tailored to the individual needs of your customers. Priced to sell in volume with full profit! For the name of your nearest Westinghouse Distributor, write: Westinghouse Air Conditioning, P.O. Box 510, Staunton, Va.—or phone Staunton 6-0711.

J-80529

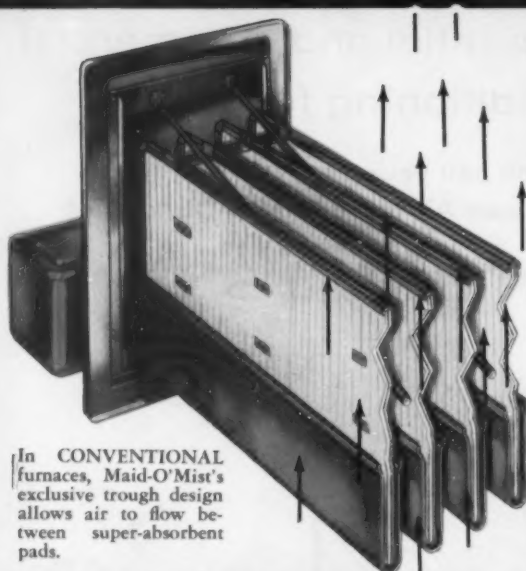
## **WATCH WESTINGHOUSE!**

WHERE **BIG** THINGS ARE HAPPENING FOR **YOU!**

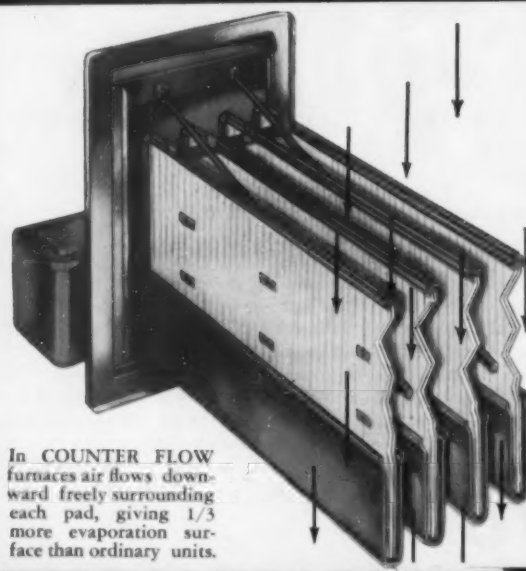
WESTINGHOUSE AIR CONDITIONING DIVISION • STAUNTON, VIRGINIA

# MORE AND MORE CONTRACTORS ARE INSTALLING MAID-O'-MIST *Automatic* Convection HUMIDIFIER

Saves *half* the time to INSTALL! Gives a *third* MORE EVAPORATION AREA!  
Has *two-thirds* LESS AIR RESTRICTION IN THE PLENUM!



In CONVENTIONAL furnaces, Maid-O'-Mist's exclusive trough design allows air to flow between super-absorbent pads.



In COUNTER FLOW furnaces air flows downward freely surrounding each pad, giving 1/3 more evaporation surface than ordinary units.

## More Humidity per dollar cost

Why More and More Furnace Contractors Are Insisting on the MAID-O'-MIST Humidifier? The reasons are sound. It's a cinch to install, rarely does it require service calls, the cost is small and it gives lasting satisfaction to the customer.

You can see in the picture that MAID-O'-MIST has no flat bottom pan to block the flow of air . . . that its  $\frac{3}{8}$ " individual copper troughs are spaced an inch apart to allow unrestricted air-flow between evaporator pads, giving a third more evaporating surface.

Perfect for small plenums, it is quick and easy to install. What's more, it is the *only* standard unit that fits BOTH conventional or counter-flow warm air furnaces.

Use MAID-O'-MIST and you'll agree . . . it's a very remarkable humidifier . . . at a very remarkable price.

60% LESS AIR RESTRICTION IN PLENUM

30% MORE EVAPORATION AREA

50% LESS INSTALLATION TIME

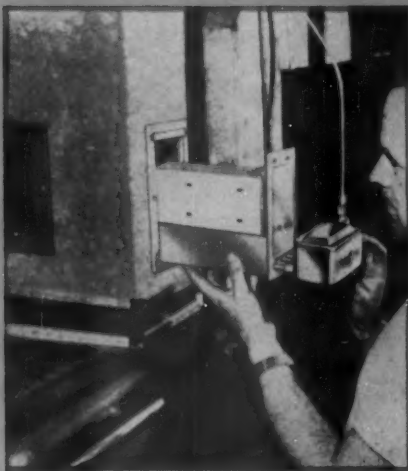
AUTOMATIC HUMIDIFIERS . . . . . WATERLINE CONTROLS  
AUTO VENTS . . . HEATING AND AIR CONDITIONING SPECIALTIES

## MAID-O'-MIST, Inc.

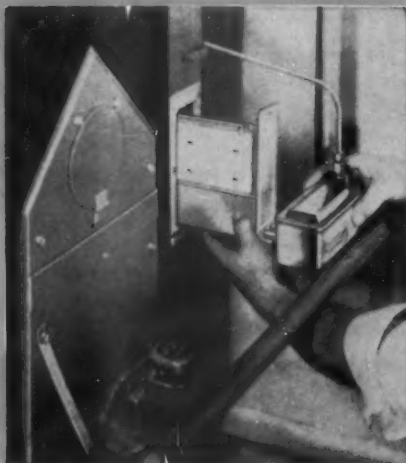
3217 NORTH PULASKI ROAD • CHICAGO 41, ILLINOIS



The only standard unit  
that fits both conven-  
tional and counter flow  
systems



**FOR CONVENTIONAL** warm air fur-  
naces cut opening in plenum and make  
water connections. 9 sizes available  
with evaporation capacities of 1 to 10  
gals. per day.



**FOR COUNTER FLOW**, because of its  
narrow trough design, you can install  
on either side of furnace having 3"  
minimum air passage.



# COMPACT... SIMPLE... RELIABLE! MAID O'MIST Wet Heat HUMIDIFIERS

For steam, hot water or  
convector radiators



On low pressure  
steam systems—

**AUTO-VENT®**  
automatic **HUMIDIFIER**  
**No. 95**

Here's the inexpensive, efficient, QUIET way to keep  
the air freshened and comfortable. It discharges 1 pint  
of water vapor per hour at 1 lb. steam pressure . . .  
enough for 2000 cu. ft. Easy to install . . . just remove  
air vent valve from radiator and screw No. 95 in its  
place.



**No. 95**  
4½" high,  
2¼" diameter.

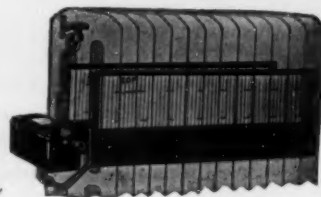
On hot water  
or steam radiators

**OL' FAITHFUL®**

automatic

**HUMIDIFIER**

Heavy copper twin troughs, each 5/16"  
wide by 2" high are concealed in loops  
inside the radiator sections from the  
side. A constant water line is main-  
tained automatically in the troughs by  
a float controlled water valve. Patented  
corrugated evaporator pads extend 3"  
above water line in troughs.



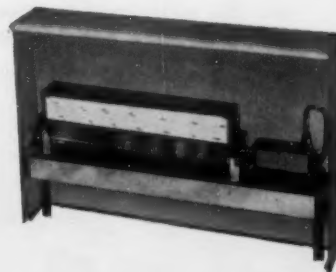
Ol' Faithful uses water from  
radiator on hot water radiators,  
or from nearest supply on  
steam installations.

Three sizes:  
18", 24" and 34" lengths.

Complete range of sizes!

**CONVECTOR**  
**HUMIDIFIERS**

For either cast iron or copper  
convector radiators . . . 5  
lengths, 2 and 4 water troughs.  
Constructed of heavy copper,  
the water troughs are 3/8" wide,  
spaced 1" apart for unrestricted  
air flow. Each trough is auto-  
matically supplied with water  
from radiator by No. 59 float  
control valve. On steam instal-



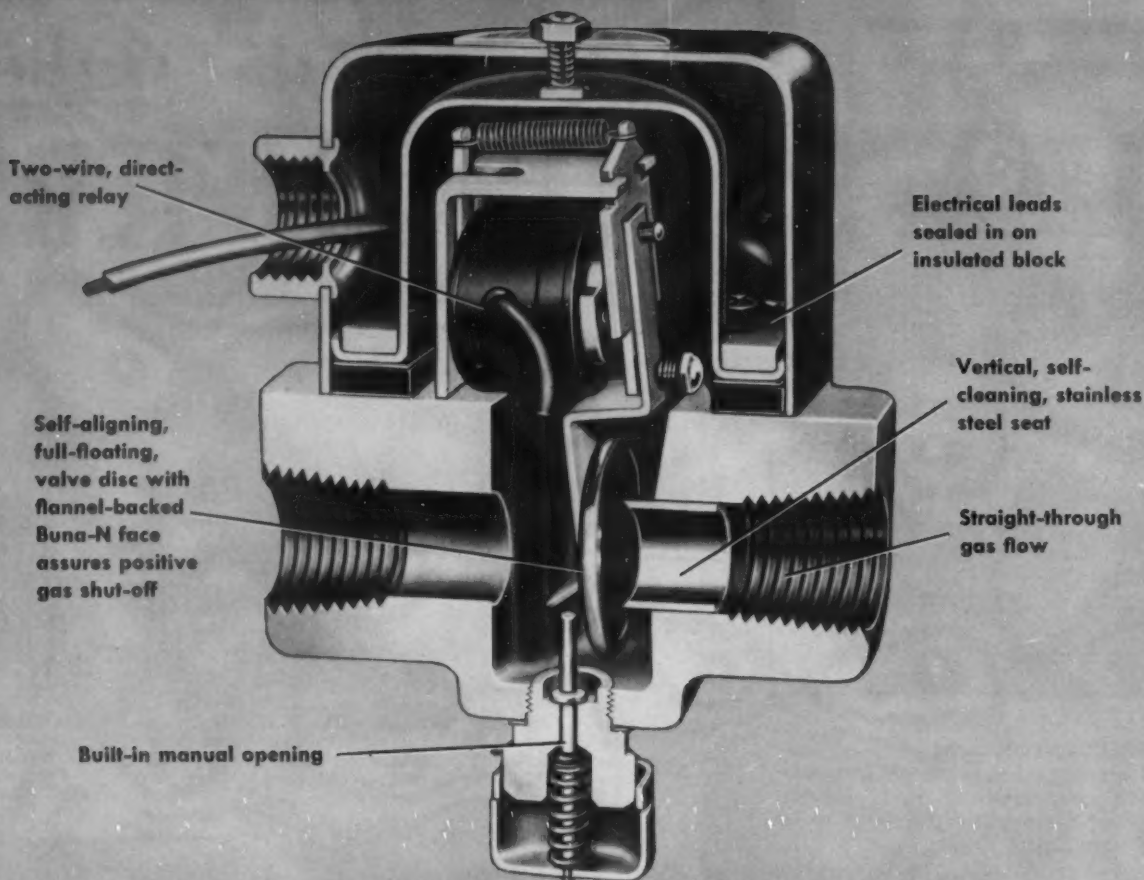
lations, water is taken from  
nearest supply thru copper tub-  
ing. Shipped assembled.

WRITE FOR NEW CATALOG



**MAID-O'-MIST, Inc.**

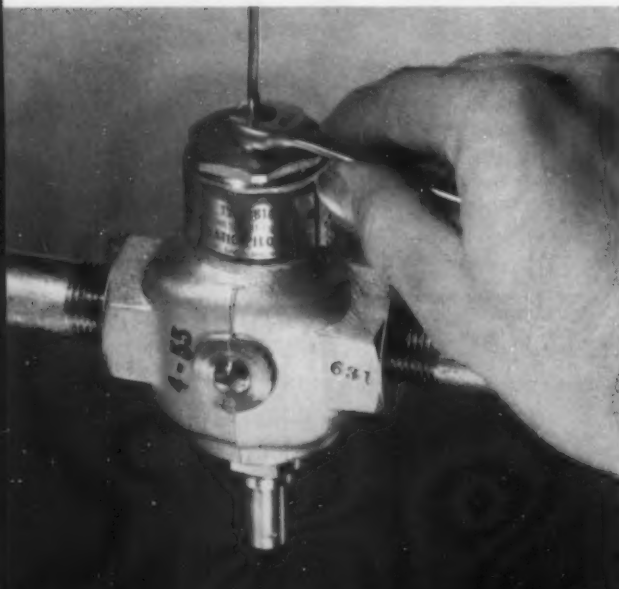
3217 NORTH PULASKI ROAD · CHICAGO 41, ILL.



A glance at the above cross-sectional view of the Penn Series 926 gas valve reveals how simple yet efficient this new valve design really is! Note the absence of a plunger and kick-off spring which cause noise in ordinary valves.

## LOOK HOW EASY IT IS TO CONNECT

It's so simple to connect the Penn thermocouple lead to the valve or relay. Secured with a small wrench, the male hex nut makes contact with terminals automatically. There are no covers to remove or wires to connect to terminals. Penn Series 814P automatic pilot valve is shown at left and the Penn type 850P1 automatic relay with manual reset is at right.



# PENN GAS VALVE IS

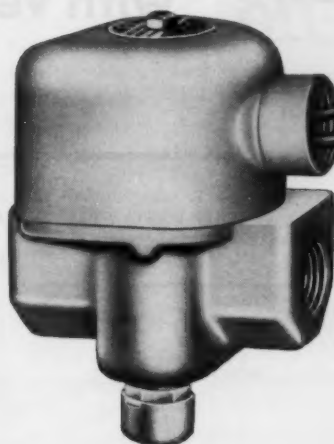
## "Whisper Quiet"

**It's not a solenoid, not a diaphragm, but a new design idea that eliminates slam-bang operation**

Here's a compact, dependable gas valve that operates so quietly you can hardly hear it. There's no more noise because noise is eliminated, not merely isolated. So...there's no more annoying slam-bang operation!

Look at the cross-sectional view and you'll see why the Penn Series 926 gas valve is so quiet, efficient and dependable. There's no plunger to "slap" when valve closes... no hum or residual magnetism sticking because there's no magnetic contact between armature and pole... there's no kick-off spring to vibrate or break. You get all this plus ample opening force and top capacity at the price of a magnetic valve, not a diaphragm.

If you want a gas valve that is *really* quiet, efficient and dependable... and, who doesn't... then try the Penn Series 926 on your next heating job. It's available in  $\frac{3}{8}$ ",  $\frac{1}{2}$ ", and  $\frac{3}{4}$ " sizes for low



or high voltage applications. Ask your burner manufacturer or wholesaler for Penn heating controls... they'll operate more efficiently.

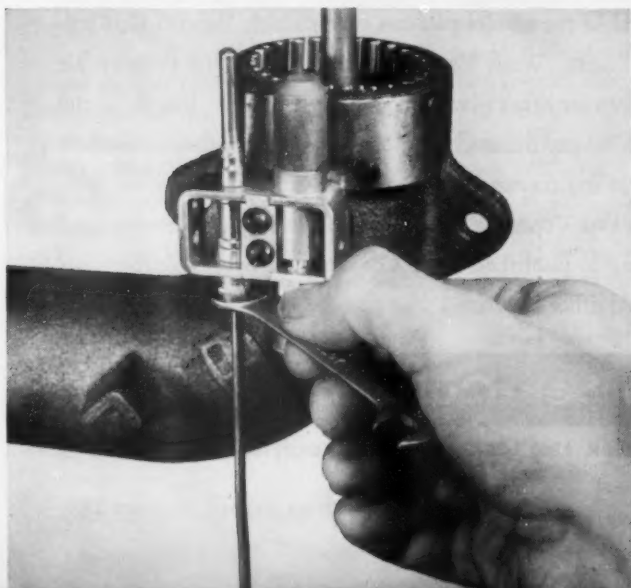
**PENN CONTROLS, INC.**

Goshen, Indiana

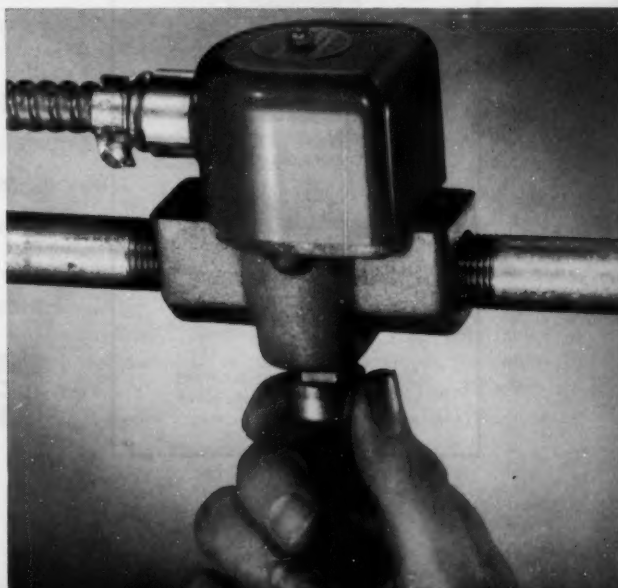
Automatic Controls For Heating, Refrigeration, Air Conditioning,  
Gas Appliances, Pumps, Air Compressors, Engines

## THERMOCOUPLE TO VALVE RELAY AND BURNER

Installing the thermocouple tip into pilot burner is so easy. Tightening one hex-head male nut properly positions and secures the thermocouple in one operation. Penn Type D-11 pilot burner is shown.



Penn Series 926 gas valves are normally closed and will shut off the gas supply if power fails. To open the valve manually, simply push up and turn the manual opening knob at bottom of valve.



THE MARK OF QUALITY



**uni-flo**

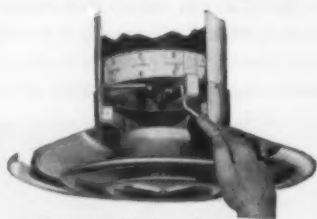
Engineered  
Air Distribution

## Get *Guaranteed* performance with Venturi-Flo ceiling diffusers

BARBER-COLMAN 1020 MODEL JS VENTURI-FLO  
VELOCITY-TEMPERATURE TRAVERSE THROUGH VERTICAL PLANE

A	B	C	D	E	F	G	H	I		
Vel-Temp.	Vel-Temp.	Vel-Temp.	Vel-Temp.		Vel-Temp.	Vel-Temp.	Vel-Temp.	Vel-Temp.		
30	73.0	55	71.5	55	70.8	55	70.4	25	72.0	9'-6"
										9'-0"
40	71.5	25	72.0	30	72.5	30	72.5	25	72.0	7'-6"
50	71.5	25	72.3	25	72.0	25	71.9	40	71.9	5'-0"
40	72.2	35	71.9	35	72.2	30	72.0	35	72.0	2'-6"
50	72.5	40	71.5	45	71.2	45	71.5	30	72.0	6"

SUPPLY AIR VOLUME — 545 CFM  
SUPPLY AIR TEMPERATURE — 51.8°F  
AVERAGE ROOM AIR TEMPERATURE — 72.0°F AT THE 5' LEVEL



Opposed-blade volume control is easily operated through face of diffuser.



Simple adjustment provides air patterns from horizontal to vertical.

The uniform, draft-free air distribution pattern charted above is typical of the results you can predict with Venturi-Flo Ceiling Diffusers. With Venturi-Flo, the mixing of primary air with room air takes place throughout the entire length of the throw. This permits even higher temperature differentials than shown in the traverse above. Barber-Colman guarantees performance of Venturi-Flo Ceiling Diffusers when they are used according to published data. Contact your nearby Barber-Colman field office or write . . .

**Barber-Colman Company**

DEPT. K, 1106 ROCK STREET, ROCKFORD, ILLINOIS, U. S. A.



## Old Home Purchasers Get New FHA Loan Provisions

PURCHASERS OF OLDER HOMES for the first time will have the same low down payment provisions as purchasers of new homes under FHA terms.

In accordance with a provision of the housing law signed Aug. 7 by President Eisenhower, the FHA regulations will make it easier for people to buy homes one year old or older.

By increasing loan-to-value ratios on existing housing to match FHA's new home terms, the minimum down payment on a home to be occupied by the borrower is now 7 percent of the first \$9000 of FHA value plus 27 percent of the value above \$9000.

## Urge Steps Be Taken to Provide Tax Equity So Small Businesses May Expand

MEMBERS of the Small Business Administration's National Council of Consultants met recently with President Eisenhower to discuss the progress report of the president's Cabinet Committee on Small Business. The council members — representative businessmen from all sections of the country — reported to the president that business conditions in their areas are good and that expansion and business growth are at record highs. After reviewing the progress of SBA's programs, the council commended SBA Administrator Wendell B. Barnes and the staff of the agency for effective work in behalf of small business. The council made the following recommendations:

1. That the recommendations on taxation of the president's Cabinet Committee on Small Business, as contained in the committee's progress report of August 7, 1956, be adopted, but that further steps also should be taken to provide tax equity for small business.

2. That continuing consideration be given to revisions of tax laws to relieve small business firms from tax-

## Forecast More Revenues, Increased Spending for '57

MORE REVENUES, larger expenditures, and a bigger budget surplus than were forecast last January are now the outlook for fiscal 1957, according to the U. S. Chamber of Commerce. This will be the second surplus year in a row, 1956 having wound up with revenues of \$1.7 billion above expenditures, the chamber says.

According to the 1957 Federal Budget Midyear Review, spending will run as high as \$69.1 billion, the second highest federal spending total for any year since World War II.

After eliminating figures for the highway construction program and trust fund, the Midyear Review estimates additional expenditures of \$4 billion above the January estimate.

Many factors are responsible for this increase:

- Appropriations for the year are almost \$8 billion above 1956.

- The international situation has created new pressures for national defense expenditures, including \$453 million additional over the January estimates of expenditures for military construction, research and development, and major procurement.

- Agricultural supports and the new soil bank program necessitated a \$2.4 billion increase.

The January estimate for 1957 revenues was \$66.3 billion; by August it was for \$69.8 billion. This leaves, according to the Midyear Review, a budget surplus of \$700 million, in itself \$300 million more than the January estimate.

exempt competition, to provide tax considerations with respect to losses of investors in small business enterprises, and to permit maximum possible small business expansion from earnings.

3. That the president call a conference to develop a program for providing increased technical and managerial information for small business.

4. That the Small Business Administration establish in each of its regional offices a specialized reference library of business management publications for use by the area's small business owners.

## Fan, Blower Shipments Show 24 Percent Increase

SHIPMENT OF FANS, blowers and related equipment were valued at \$72,000,000 during the second quarter of 1956, which is 24 percent above the value of shipments for the first quarter of 1956, according to the quarterly report issued by the U. S. Department of Commerce and Bureau of the Census.

## Fourth Quarter Sees Tight Steel Situation

AS THE YEAR's fourth quarter began, steel mill operations were back at capacity and metal fabricating activities as a whole were rising. However, despite the efforts of the steel industry in pushing output the list of items in short supply is growing. Faced with the anticipated revival in consumer durable goods demand, continuing defense needs, and the rising pressure for most types of machinery, equipment, and heavy construction, the industry has been getting more orders than it can handle. Steel supplies may get even tighter if, as expected, automobile companies step up their November and December orders for steel for the new models.

# General Electric Stack Switch Adjusts Eliminates Leveling, Gives Long-life

Clutch provides automatic stack temperature adjustment

Rubber grommet for thermostat wire protection

Combination transformer relay is sealed against dirt and dust

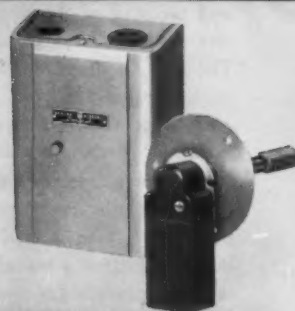
Positive thermal timer is factory adjusted

Thermal reset button is conveniently located

Clearly marked terminals and ample wiring space

GENERAL ELECTRIC  
MASTER CONTROL  
C7868A101A2  
115 VOLTS 60 CYCLES  
MOTOR RATING  
AMP 7.1 V.A. AMP 1.8 44  
PILOT DUTY RATINGS 125 V.A.  
CONTROL CIRCUIT 9.25 AM  
25 VOLTS  
N.Y. 11584 SCHENECTADY N.Y. MADE U.S.A.

## G-E CONTROLS



**REMOTE MOUNTED G-E**  
master control and flame detector are ideal for applications where larger gallon-per-hour capacity of oil burners requires faster control.

# Automatically, Performance

General Electric's stack mounted master control is designed for highest quality, minimum servicing and ease of installation. Eliminated are the troublesome needs for leveling, adjustments and call-backs due to nuisance lockouts. You simply install the G-E control, set the knob on the "cold" side and forget it. In addition, the master control automatically recycles once after a flame failure. And, even though it's lighter in weight, the G-E control will stand plenty of abuse and requires no special handling. The high-quality features designed into the master control are typical of all G-E domestic heating controls. Another major advantage in using G-E heating controls is the exchange plan.

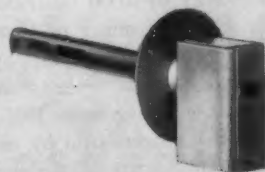
**G.E.'s EXCHANGE PLAN**, available to you through the nationwide G-E distributors listed at the right, enables you to exchange an inoperative heating control—of ANY MAKE—for a factory reconditioned G-E heating control of a similar function. Take your inoperative controls to your nearest G-E distributor today. He'll provide you with excellent service, and you'll get the replacement control at a substantial reduction in price! General Electric Co., Schenectady, N. Y.

740-95

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

**MOUNT IN ANY POSITION**



**G-E FAN AND LIMIT** control can be used with oil-, gas-, or coal-fired systems. It combines in one enclosure the necessary units to control fan operation and to provide greater safety limit protection for the system. Separate limit or fan controls are available.

## PICK YOUR LOCAL G-E DISTRIBUTOR FROM THIS NATIONWIDE LIST\*

**ALBANY, N. Y.**  
Cert. Fuel Unit Service  
Colonial Heating Equip.  
**ALLENTOWN, PA.**  
Sid Harvey, Inc.  
**ARLINGTON, VA.**  
Sid Harvey, Inc.  
**AUBURN, N. Y.**  
Road Utilities Co.  
**AURORA, ILL.**  
Scott Wood & Metal, Inc.  
**BALTIMORE, MD.**  
Sid Harvey, Inc.  
R. E. Michel Co.  
**BATTLE CREEK, MICH.**  
Columbia Metal Service  
**BLOOMINGTON, ILL.**  
MaGirl Foundry & Furnace  
**BOSTON, MASS. Area**  
Cranin Supply Co.  
F. W. Foley Co.  
Sid Harvey, Inc.  
Astro Supply Co.  
Mattapan Supply Co.  
**BROCKTON, MASS.**  
R. H. Austin Co.  
**BRIDGEPORT, CONN.**  
Sid Harvey, Inc.  
**BUFFALO, N. Y.**  
Rochester Oil Burner Co.  
**BURLINGTON, N. C.**  
Alley & Rader Services  
**CALDWELL, N. J.**  
Cent. States Supply Co.  
**CHARLOTTE, N. C.**  
Burner Supply Co.  
**CHESTER, PA.**  
Hepco Co.  
**CHICAGO, ILL.**  
Robert Barclay, Inc.  
Place Brothers  
C. E. Sundberg Co.  
**CINCINNATI, OHIO**  
F. E. Winstel Co.  
**CLEVELAND, OHIO**  
Ohio Pump Service Co.  
**COLUMBUS, OHIO**  
Columbus Auto. Sprayer  
**DAYTON, OHIO**  
Republic Electric Co.  
**DECATUR, GA.**  
Rayheat Equip. Co.  
**DES MOINES, IOWA**  
Dennis Supply Co.  
Heating Wholesalers  
Ace Supply Co.  
**DETROIT, MICH.**  
Hydraulics Pump & Repair  
National Furnace & Sheet Metal Co.  
Pelton Distributing Co.  
Wholesale Oil & Gas. Sup.  
**EDGEWATER, N. J.**  
Kogan & Company  
**ELIZABETH, N. J.**  
Cert. Fuel Unit Service  
**EVANSVILLE, IND.**  
Swanson-Nunn Elec. Co.  
**FLINT, MICH.**  
Moore Bros.  
**FORT WAYNE, IND.**  
Tri-State Htg. Supply  
**GARY, IND.**  
G. W. Berkeimer Co.  
**GRAND RAPIDS, MICH.**  
Mich. Auto Htg. Equip.  
**GREEN BAY, WISC.**  
Beemster Elec. Co.  
**HARRISBURG, PA.**  
Fuel Savers, Inc.  
**HARTFORD, CONN.**  
Sid Harvey, Inc.  
**HAWTHORNE, N. J.**  
Univ. Eng'g Co.  
**INDIANAPOLIS, IND.**  
G. W. Berkeimer Co.  
**JACKSON, MICH.**  
Leo. A. Tilford, Inc.  
**KALAMAZOO, MICH.**  
Associated Supply Co.  
**KANSAS CITY, MO.**  
Chas. D. Jones Co.  
Superior Supply Co.  
**LANSING, MICH.**  
Contractors Sy. Co.  
**LOUISVILLE, KY.**  
Marine Elec. Co.  
**LOWELL, MASS.**  
Sid Harvey, Inc.  
**MADISON, WISC.**  
Wisconsin Htg. Equip.  
**MALDEN, MASS.**  
Sid Harvey, Inc.  
**MERCHANTSVILLE, N. J.**  
Cert. Fuel Unit Service  
Sid Harvey, Inc.  
**MILWAUKEE, WISC.**  
Refrigeration Parts Co.  
Heating Parts Exch.  
**MORRISTOWN, N. J.**  
Amber Oil Burner Sup.  
**NEW HAVEN, CONN.**  
A. R. Webber Co.  
**NEWARK, N. J.**  
Cert. Fuel Unit Service  
Sid Harvey, Inc.  
Winston, Company  
**NEW YORK CITY, N. Y. Area**  
Sid Harvey, Inc.  
Michael & Goldberg Plbg. & Htg.  
Radiant Burner Supply  
Atlantic Burner Supply  
**NORFOLK, VA.**  
Sid Harvey, Inc.  
**NORRISTOWN, PA.**  
Sid Harvey, Inc.  
**NUTLEY, N. J.**  
Nutley Oil Burner Supply  
**OMAHA, NEBR.**  
Dennis Supply Co.  
**ORLANDO, FLA.**  
Industrial Equip. Co.  
**PASSAIC, N. J.**  
Sid Harvey, Inc.  
**PEORIA, ILL.**  
Htg. Supply & Service  
**PHILADELPHIA, PA.**  
Cert. Fuel Unit Service  
Grand Plbg. Supply  
Sid Harvey, Inc.  
**PORTLAND, OREGON**  
McPherson Furnace & Supply Co.  
**PROVIDENCE, R. I.**  
Rhode Island Fuel Pump Service Co.  
Sid Harvey, Inc.  
**QUINCY, ILL.**  
McDonald Stove Co.  
**READING, PA.**  
Sid Harvey, Inc.  
**RICHMOND, VA.**  
R. E. Michel Co.  
Refrigeration Supply Co.  
**ROANOKE, VA.**  
Southern Refrigeration  
**ROCHESTER, N. Y.**  
Rochester Oil Burning System  
**ROCKFORD, ILL.**  
Oil Heat Parts  
**SAGINAW, MICH.**  
Reichle Supply Co.  
**SCHEMECTADY, N. Y.**  
LeValley McLeod Inc.  
**SEATTLE, WASH.**  
McPherson Furnace & Equip. Co.  
**SIOUX CITY, IOWA**  
Dennis Supply Co.  
Heating Wholesalers  
**SOUTH BEND, IND.**  
Koontz-Wagner Elec.  
**STERLING, ILL.**  
Crescent Elec. Co.  
**SPOKANE, WASHINGTON**  
McPherson Furnace & Equip. Co.  
**SPRINGFIELD, MASS.**  
Gray Supply Co.  
Sid Harvey, Inc.  
**STELTON, N. J.**  
Sid Harvey, Inc.  
**SYRACUSE, N. Y.**  
Oil Burner Supply Co.  
**THOMASVILLE, GA.**  
Industrial Equipment Co.  
**TOLEDO, OHIO**  
Fry Furnace Co.  
**TRAPPE, PA.**  
Jacob H. Bowers Co.  
**TRENTON, N. J.**  
Lincoln Supply Co.  
Sid Harvey, Inc.  
**TROY, N. Y.**  
Century Supply Co.  
**UNION CITY, N. J.**  
Sid Harvey, Inc.  
**UTICA, N. Y.**  
Road Utilities Co.  
**VINELAND, N. J.**  
Hepco Company  
**WASHINGTON, D. C.**  
Sid Harvey, Inc.  
R. E. Michel Co.  
**WATERLOO, IOWA**  
Heating & Cooling Supply  
Heating Wholesalers  
**WILMINGTON, DEL.**  
Greenburg Supply Co.  
Rain Burt Supply Co.  
Sid Harvey, Inc.  
**WOODBURY, N. J.**  
Sid Harvey, Inc.  
**WORCESTER, MASS.**  
Sid Harvey, Inc.  
John W. Walsh, Inc.  
**YORK, PA.**  
Sid Harvey, Inc.  
**ZION, ILL.**  
Mid-Way Supply Co.

\* This list is continually being expanded to supply you with even greater G-E heating control service.

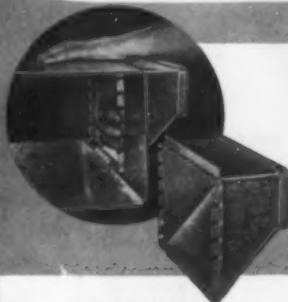
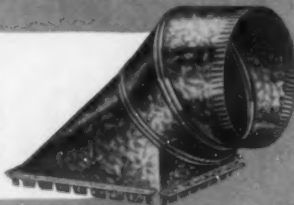


**You Make More  
Because You Get More With  
ADELTA  
STANDARDIZED PIPE,  
DUCT AND FITTINGS**



**the one-piece snap  
lock cleat with  
tapered leading edge**  
an original Adelta idea  
that saves assembly  
time for you

**the universal  
adjustable take-off**  
an original Adelta idea  
that saves your hand-  
ling so many different  
types of take-offs



**the pre-notched  
collar edge**  
an original Adelta idea  
that eliminates notching  
and hammering on all  
collar connections to  
speed assembly

**Original Adelta ideas plus the finest in  
pre-fab pipe, duct and fittings, Adelta  
cartoning, in-stock service and our help  
whenever you need it means you'll  
make more profits on every heating  
and air conditioning installation.**

**See your jobber or write, wire or call  
us direct.**



**ADELTA MANUFACTURING CO., INC.**  
21st & Ellsworth St., Phila. 46, Pa.  
PEnnypacker 5-7843



**WASHINGTON LETTER —**

(Continued)

## Employing Apprentices In Federal Construction

AT THE REQUEST of the Bureau of Apprenticeship, the Solicitor's Office of the U. S. Department of Labor has prepared a memorandum of interpretation concerning its enforcement policies affecting the employment of apprentices on federal or federally-assisted construction. It covers six main points:

1. Summary of regulations governing apprentice employment on covered construction.
2. Procedure for registration.
3. Backdating of apprentice agreement approvals and registrations not recognized.
4. Wages to be paid unregistered apprentices.
5. Disproportionate employment ratio.
6. Wage determination provisions.

Copies of the memorandum can be obtained by writing the Bureau of Apprenticeship, U. S. Department of Labor, Washington 25.

## FHA, Home Builders Work To Reduce Building Costs

THE MINIMUM DOWNPAYMENT on homes appraised at \$9000 or less has recently been reduced by the Federal Housing Administration from 7 to 5 percent, the minimum allowable under the law. Its action reducing downpayments, the agency says, is part of a campaign being carried on by FHA and the home builders of the country to see to it that building costs are reduced. Currently FHA is reviewing its minimum property requirements for several of the programs in this price range to see if any reductions in standards may be effected without adversely affecting the value to the buyer.

## Average Fringe Benefit Jumps to \$819 a Year

A SURVEY OF 1000 COMPANIES recently completed by the U. S. Chamber of Commerce shows that fringe benefit costs — payments by employers for pensions, vacations, social security and the like — averaged \$819 per employee in 1955, for an increase of \$99 over the benefits paid by employers for employees in 1953. Broken down, the survey shows that the 1955 average of \$819 per employee includes \$254 for agreed upon programs of pensions and insurance, \$254 for vacations and holidays, \$145 for legally required programs (Old-Age and Survivors Insurance, Unemployment and Workmen's Compensation and others), \$89 for rest periods, and \$77 for miscellaneous.



# Completely New and Different!

## HONEYWELL'S

# V-80

## SILENT GAS VALVE

AGA and UL LISTED  
Conforms to utility requirements



ACTUAL SIZE



**IT'S SILENT**  
eliminates home owners'  
complaints about  
noisy valves



**IT'S LOW IN COST**  
priced only  
slightly above  
solenoid valves



It eliminates  
**PERIODIC SERVICE**  
because the operating parts  
are out of the gas stream

## Here's the GAS VALVE that sets a new standard for the industry!



*turn to the next page and see the V80's advanced new design!*

# Revolutionary New Gas Valve Design!

## HONEYWELL'S

# V-80

**SILENT GAS VALVE**

Combines the simplicity of the solenoid valve with the silence of the diaphragm valve . . . plus many additional new advantages of its own

Featuring...

the plunger which acts  
**SILENTLY**  
in a cushion  
of oil

● terminal connections . . . for faster wiring

● electrical parts out of the gas stream . . . meets S. U. R. requirements

● operating parts out of the gas stream . . . eliminates periodic servicing

● can be mounted in any position in a horizontal pipe run . . . solves space problems

● can be used with all gases and all types of equipment



● all working parts permanently lubricated and sealed . . . provides long, trouble-free life

● no bleed connections required . . . cuts installation costs

● small compact size . . . installs out of the way

● self-aligning soft disc valve . . . assures tight close-off

● inclined self-cleaning valve seat . . . eliminates periodic servicing

When you specify the Honeywell **V-80**,  
you're specifying the best in gas valves!

For complete information, call your  
local Honeywell office—or write  
Minneapolis-Honeywell, Dept. 2749,  
Minneapolis 8, Minnesota.

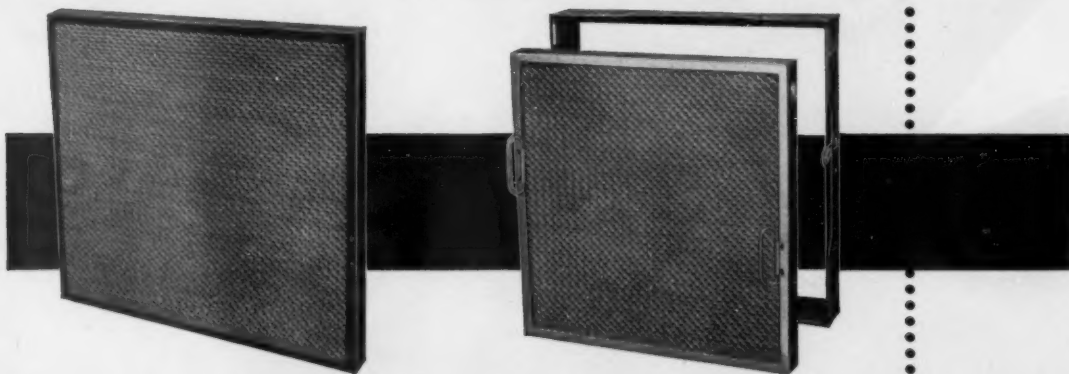
MINNEAPOLIS  
**Honeywell**

*First in Controls*

# STANDARDIZATION

## OF ALL AAF 2" UNIT FILTERS

## SPEEDS SALES — SIMPLIFIES INVENTORY



DESIGN C. Basic filter cell without handles for use in air handling devices which provide necessary supporting members for filter. Pre-fabricated die-cuts on each side are for attaching bail handles.

DESIGN A. Shows basic cell with bail handles attached, universal frame. Note spring latch on frame at right.

**H**ERE'S the "grass roots" solution to making on-the-spot deliveries of unit washable filters to meet varying customer requirements:

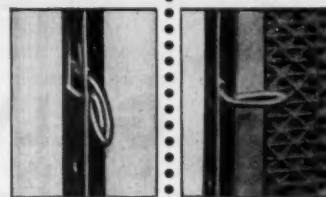
**FIRST.** Standardization of all AAF 2" unit washable filters—Types HV, M/W and A/C—at  $\frac{1}{2}$ " under nominal size.

**SECOND.** Universal frames that fit any filter in the line.

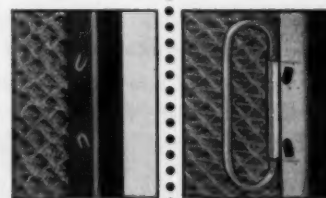
**THIRD.** Easily attached *spring latches* that lock any filter into universal frame.

**FOURTH.** *Bail handles* that can be quickly fastened to any AAF permanent filter cell.

With a stock of the above, you have all the equipment needed to "custom-tailor" in your own shop the right type of filter for any 2" installation requirement. For complete information, call your local AAF representative or write us direct.

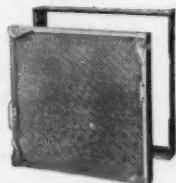


Spring latches are quickly inserted in die-cut in universal frame. A screw driver is the only tool needed. Then a "twist of the wrist" locks filter securely in place.



Closeup of cell side showing pre-fabricated die-cut tabs for attaching bail handles. Handles are easily attached by punching tabs through rectangular openings in bail handle hinge.

DESIGN B. This cell, equipped with factory-installed corner latches, is for use where a greater degree of custom-fitting is desired. Its size has been standardized to fit universal frames.



# American Air Filter

COMPANY, INC.

355 Central Avenue, Louisville 8, Kentucky  
American Air Filter of Canada, Ltd., Montreal, P. Q.



AAF Dust Control Equipment



AMERgas Replaceable Air Filters

BETTER AIR IS OUR BUSINESS

Harman Nelson Propeller Fans



Herman Nelson Unit Blowers



## **GALVANIZED SHEETS**

### **Top Quality... Quick Delivery**

When sheet metal jobs call for galvanized, you want quick delivery. And you want a sheet that forms readily . . . gives long-lasting protection against corrosion.

That's what you get when you call Ryerson, dependable quality, fast service.

Our stocks of galvanized sheets are large; we can offer you many gauges in a wide range of pattern sizes, as well as in sizes cut to your order. These sheets have a uniform coating, clean and bright, which will give your jobs permanence plus a pleasing appearance that your customers will appreciate. And one good job always leads to another.

There's convenience in calling Ryerson, too. In addition to galvanized, you can get quick shipment of most every other steel requirement—hot and cold rolled carbon steel sheets, stainless, Ry-ex expanded metal, bar size angles, etc. Just call your nearest Ryerson plant for fast action.

• • •

Need metal-working machinery or tools? Again you can deal with the same convenient source. Your nearby Ryerson plant supplies every type used by sheet metal shops.

## **RYERSON STEEL**

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE, N.C. • CINCINNATI • CLEVELAND • DETROIT  
PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE





## Get on the Holiday Bandwagon

RIGHT AFTER THANKSGIVING, the heaviest buying spree of the year will get underway. Most of the buying will be centered around personal gifts. However, in recent years there has been a trend toward getting a present for the home too. Something that everyone can share in the enjoyment of owning. What better present can be given a home than a new, up-to-date heating system or a central cooling system? If these gifts are beyond the immediate financial means of the home owner, there are of course many other products handled by the dealer that can contribute to better living. To mention a few: incinerators, dehumidifiers, conversion burners, water heaters, air cleaners, ventilators and kitchen exhaust hoods.

Sales of this equipment are not going to be easy to close in the face of the appeals being made by department stores, appliance stores and others. A good way to get on the holiday bandwagon is through the use of the same media other businesses are using to influence buyers to favor their products.

The first effort made to attract prospects is to dress showroom windows in holiday colors and symbols. Any retail dealer failing in this tradition serves notice to the buying public that he isn't interested in holiday sales. If the decorations do no more than indicate that the dealer is going along with other neighborhood merchants, it serves a good purpose because it shows an interest in community affairs and a sharing of the season's spirit, resulting in consumer good will.

Window displays and decorations should be distinctive and actually invite prospects into the showroom. Often, well displayed equipment is remembered long after it has been seen.

Some dealers give gaily wrapped presents to all who enter their showrooms. A Toledo dealer has three presents wrapped: a key case for the men, a kitchen pot holder for the ladies, and for the children, a toy bank shaped like a fuel oil tank. On each of the three articles the company's name, address, and phone number appear along with the company's slogan, "Comfort engineering, our specialty."

Another dealer set up a dummy Santa Claus sitting at an electric organ in front of a display background showing a group of children joining him in singing carols. The music was provided by phonograph records and a public address system. Placards invited passersby to come in and select presents for their homes.

Most displays of this type are inexpensive. The one described above cost less than \$75.

By taking an active part in helping the community celebrate the holiday season, a dealer builds his community prestige, which has a lasting effect on a prospect who is trying to decide whether to buy a new heating or cooling system, or some other item of limited usefulness.



**CERTIFIED HEATING** and cooling makes money for dealers, delights builders and city officials. Contract for year 'round comfort in housing project gets approval from Ray O'Hara, executive secretary of Cuyahoga County Sheet Metal Contractors Association; Hugh Price, mayor of West Lake; Bill Patterson, Bay Furnace Co.; and Bill Galick and Joe McCrone, builders of the project which contains 62 houses from \$27,000 to \$45,000, all year 'round air conditioned

## Certified

**THREE RESULTS** are seen for dealers in Cuyahoga County Certified Heating-Cooling Program:

- 1) Heating systems will be improved
- 2) Dealers' costs will go up — probably between \$65 and \$100 per project installation
- 3) But dealers' profits will also go up considerably

**PHYSIOLOGICAL** tests both in the laboratory and in the field show there are five main requisites for complete air conditioning comfort: air at the right temperature; draftless air motion; proper moisture content of the air; adequately filtered air; and air that is free of staleness. These requirements have been put into the following definition by the American Society of Heating and Air-Conditioning Engineers: "Air conditioning is the process of treating air so as to control its temperature, humidity, cleanliness and distribution to meet the requirement of the conditioned space."

The warm air heating or summer air conditioning system can provide all these requisites only if it is correctly designed and installed. Field studies show proper heat loss calculations had not been made prior to installation of the equipment in about 80 percent of the houses tested by the National Warm Air Heating and Air Conditioning Association mobile laboratory. The failure to make such an estimate resulted in badly undersized or oversized furnaces and inconsistent air delivery to rooms. This means consumers are not getting warm air heating installations representative of the comfort that a good system is capable of delivering when designed in accordance with the association's research-proved installation procedures.

### Certified Heating Boosts Warm Air

To aid dealers in offering the heating and cooling prospect a system that consistently follows the association's

recommendations, the warm air heating industry has instigated a Certified Warm Air Heating and Cooling Program at the local level. Several local associations are now working on plans to put this program in effect. This is a report on what has been accomplished in this effort by the Cuyahoga County (Ohio) Sheet Metal Contractors Association. The group serves Cleveland and its suburbs.

This program is expected to create a more favorable local business climate for dealer-contractors because it has been designed to strengthen the two basic weaknesses which plague local markets: 1) lack of consumer demand for high quality warm air heating systems, and 2) lack of adequate system design and installation in accord with established design standards to foster continued and growing consumer confidence in the warm air method of heating.

### See Improvement in Pricing Schedule

The plan is also expected to result in a better pricing schedule among dealers, which will aid in removing the "price alone" measuring stick so often used by purchasers of heating and cooling systems. The Certified Heating-Cooling Program will require that plan specification data comply with the procedures outlined in NWAH-ACA's manuals. Thus, consistent results can be forecast for each system, regardless of who completes the sale.

The certified program must be under the direction of a paid association secretary because of the details involved in carrying through certification of each system.

# Heating-Cooling Gains Momentum



*... in the Cleveland area  
where the Cuyahoga County Sheet Metal  
Contractors Association has the  
wheels in motion and is receiving warm  
response from builders and the public.  
Here's what it is and how it works*

The program works like this: members of the association submit a plan of the house to be heated or cooled by a certified system, the specifications for air distribution, equipment capacity, temperature and humidity conditions to be maintained, and other data pertinent to the job, including such items as thermal insulation of duct work where required or sound insulating procedures to reduce noise transmission into the living area.

## Engineer Checks Plans to Manuals

Plans are turned over to an engineer who checks them for accuracy against the manuals published by the National Warm Air Heating and Air Conditioning Association. If the plans meet the requirements of the manuals, the system is approved for installation. If the plans fail to meet the manuals' specifications they are returned to the dealer for alterations that will tailor them to the program's requirements, after which they will be returned for a second examination before approval can be granted.

## Inspector Stamps Approval

When the system has been installed, the local association's secretary is notified. The secretary sends an inspector out to check the system against the approved plan. If corrections are not required, the inspector will affix a seal showing the system has met the requirements of the Certified Heating-Cooling Program.

Enforcement of the program is handled by the local

## Certified heating-cooling system guarantees the homeowner that:

- 1 The design of the system will meet the recommendations of the National Warm Air Heating and Air Conditioning Association or the American Society of Heating and Air-Conditioning Engineers
- 2 The heating unit is adequately sized to heat all living areas to at least 75 F at an outside temperature of -5 F; cooling capacity must be capable of delivering 75 F at outdoor temperature of 90 F
- 3 The air distribution duct system is adequate and of proper design to condition all living areas to within 2 deg of the thermostat setting
- 4 The installation will conform to all municipal codes and the requirements of the local public utilities
- 5 All mechanical equipment is warranted against defects in workmanship and materials for one year after date of installation



association which assesses each plan submitted for approval. The fee is \$10. When the system is inspected a second fee is charged, this time \$15. If both a heating and cooling certification is requested the fee is doubled due to the additional work involved in checking the specifications and making two inspection trips to the house.

Further evidence that dealers will stand behind their certified program is the financial responsibility guaranteed by each member of the Cuyahoga County association. The \$1000 bond secured by each dealer will be forfeited in whole or part if he fails to uphold the standards of the program.

#### Arbitrators Settle Disputes

In the event of a dispute over whether or not a particular installation conforms to the specifications set forth in the approved plans, settlement will rest in the hands of a board of arbitrators. This board will be made up of three members. Two will be registered engineers, one selected by the dealer, the other by the association's secretary. The third member will be appointed by a non-competing party such as a national association, or a well known person acceptable to both the association and the dealer involved. Any decision by this board of arbitrators will be accepted by both parties.

If the dealer makes the adjustments called for by the board's findings, there are no penalties imposed; however, if the dealer fails to comply with the board's recommendations, the corrections will be made under direction of the association secretary who will file a claim for the costs involved against the offending dealer's bond. Damage to the Certified Heating-Cooling Program can also be included in this claim which can vary in amount up to the full \$1000.

This agreement is signed by all parties involved in the certified program and is witnessed by a notary public to make it a legal document.

#### Prestige Is Worth Extra Cost

It has been estimated that it will cost the dealer between \$65 and \$100 additional to install certified systems. Part of this cost will be in the form of approval

and inspection fees, the other costs will come from extra supply ducts and registers, return openings, insulating of exposed ductwork, noise reducing precautions, advertising expense and other expenses.

Benefits to the dealer will come from his ability to connect his business operation with that of the Cuyahoga County association. The dealer receives an emblem which he is permitted to display on his store front, in his showroom, on his stationery and in other media of public contact.

#### Heavy Publicity Campaign Launched

The program was announced to the home owners of the Cleveland area through the newspapers. The first notice was through a press conference called for representatives of the city and neighborhood newspapers. The press conference was timed to take advantage of weekend issues of the major newspapers. Attending the press conference were the association's officers, headed by third term president, Dave Gore; vice presidents, Ray Quiggan and Gordon Justen; treasurer, Al Mintz; and executive secretary, Ray O'Hara. All were on hand to answer questions asked by the members of the press. After photographs were taken and questions were answered, a press release was handed out. This release outlined the certified program for the readers and was published almost verbatim.

The program is being further publicized through full page advertisements which appear each weekend in the newspaper carrying the largest section on home building. The initial advertising contract called for six such insertions. It is apparent that the benefit gained by this advertising campaign has been proved well worth the cost to the participating dealers because the contract will be extended. The cost per dealer is \$15 a week.

#### National Association Helps on Ad

The full page ad is divided into two sections, one half being in the form of editorial material of prime interest to homeowners. This copy is supplied by the National Warm Air Heating and Air Conditioning Association and emphasizes the benefits that can be expected from a properly installed air distribution system. Thermostat operation is covered in one of the items; in another, the purpose of filters and their effect on air delivery are described; and still another tells about perimeter outlets for air delivery.

The lower half of the ad carries the name, address, phone number and slogan of each cooperating dealer. Manufacturers cooperating in the certified program are listed together at one side of the page.

#### Builders Go for Plan

An entire meeting of the local builders' association was devoted to an explanation of the certified program and what it would mean to the builder. This program and



subsequent explanations resulted in the sale of three housing projects within 3 weeks. The largest sale was an order for certified heating systems in 157 houses.

The signing of this large order was another opportunity to call in the local press who witnessed the signing of the contract, took photographs and reported this newsworthy item in the building section of their newspapers.

### **Program Calls for Two Inspectors**

Although the program calls for a check of the plans by a registered engineer, the Cuyahoga County association has not put such a man on their staff as yet. Filling this important position is planned for the near future, however. For the present the plans are being sent to the office of a professional engineer who is charging for his services by the size of the heating-cooling equipment required. This rate is  $4\frac{3}{4}$  cents per 1000 Btu output of the equipment.

The inspections are also being made on a part time basis by a qualified inspector. This arrangement will continue until the number of systems increases to a point where a man can be used full time. Eventually, the work should require two full time inspectors to cover the Cleveland area. Inspection time usually runs about  $1\frac{1}{2}$  hours per job.

Inspection covers tracing supply and return ducts

#### **SYSTEM LAYOUTS submitted by the dealer for certification must include:**

- 1) Tracing and two blue prints of the heating-cooling layout. Also name of the builder and address of the houses — either street numbers or sub-lot numbers
- 2) Heat loss calculations in duplicate. (Note: NWAHACA has a simple form which may be followed)
- 3) A set of architect's plans showing simplified construction details such as type of construction; type and amount of insulation; weatherstripping or storm windows, etc.
- 4) Size, location, and Btu and cfm for all registers
- 5) Size of plenum, main supply and return ducts drawn to scale (branch runouts can be indicated by single line drawings)
- 6) Thermostat location

against the approved plan; comparing their size against written specifications; checking location of the thermostat and its differential setting; testing the firing rate of the furnace (actual output in Btuh); checking cfm at the register openings; measuring balance of temperature within a room from floor to ceiling and between rooms; determining air volume handled by return openings; and checking noise transmission.

The heating system must be capable of delivering a 75 F temperature at outdoor design temperatures of -5 F. The cooling capacity must be capable of delivering 75 F under outdoor design conditions of 90 F. Room temperature differences must not vary more than 2 F from the thermostat setting. The installation must conform to all municipal codes and to the requirements of the local public utility companies.

Support for the certified program has been pledged by the local field offices of the Federal Housing Administration and the Veterans Administration.

### **Complete Plans Required**

The Cuyahoga County association requires that this procedure be followed when submitting plans for approval:

- 1) Two blue prints of the heating-cooling layout must be submitted. Also the name of the builder and the address of the houses — either street number or sub-lot numbers.
- 2) The heat loss calculations, in duplicate, must accompany the layout. (Note: The National Warm Air Heating and Air Conditioning Association has a form which is acceptable.)
- 3) A set of architect's plans should be included giving the simple construction details, such as type of construction — insulation used, whether weatherstripping or storm windows are planned, etc.
- 4) The register locations must be shown, including the size, the Btu and cfm for each.
- 5) The size of the plenum, main supply and return ducts should be to scale — the branch runouts can be shown as single line drawings.
- 6) The thermostat location should be indicated.

Builders indicate they feel the certified program will be an additional merchandising tool, especially after the public begins to ask for a certified heating or cooling system due to the educational program now underway. The guaranteed system is a special feature that appeals to the project builder and is worth the additional cost involved according to dealers who have talked with Cleveland builders of moderately priced houses.

**How one dealer put Certified Heating to work**



# He Put Certified Heating to Work...



CONSULTATION PROVIDES methods of adapting existing plans to meet the requirements of the certified system. Company officers involved in this conference are Seymour Gore, engineer; Joseph Simon, field superintendent; Jerry Gore, general manager; and Dave Gore, president

... for a builder who saw enough merit in the program to make the necessary adjustments in his house plans

## ...and Clinched Future Project Sales



THIS HOUSE HAS a certified heating system — one of 150 houses in a project which carry this guarantee of good installation and performance as a strong selling tool

... when the builder realized the merchandising power of the certified program in selling houses

REALIZING THAT A Certified Heating Program has much to offer the project home builder in the way of a merchandising tool, Jerry Gore of Home and Industrial Heating Co., Cleveland, followed the Cuyahoga County Sheet Metal Contractors Association's suggestions. The company had a contract for 200 houses in a building project on the east side of Cleveland. Fifty of the houses had been completed but to give the builder an opportunity to take advantage of the prestige attached to certified heating and cooling and to earn the privilege of attaching the certified sticker to the heating systems now

being installed, Jerry Gore held a conference with his two brothers: Dave, who is president of the Cuyahoga County association, and Seymour, who is a member of the American Society of Heating and Air-Conditioning Engineers. Also called in for consultation during this conference was Joseph Simon, field superintendent for the company.

The conference resulted in a complete review of each set of plans being used by the builder. The alterations necessary to make sure the plans would meet the requirements of the certifying engineer were listed. The



PANNING OF THREE joist spaces assures a free flow of air to the dual return duct system



EACH EXPOSED WALL surface is provided with enough air to blanket the area from strategically located perimeter diffusers



DUAL EXTENDED PLENUMS and dual return ducts provide adequate air flow to and from all parts of the house to meet requirements of the certified system program

cost involved in making necessary changes was calculated for each set of plans. In general it was found that minor alterations were necessary, such as relocating the thermostat, adding an extra return opening and adding an extra outlet in one of the bedrooms.

### New Contract Specifies Certified Heating

These installation costs were estimated, as were the costs for obtaining approval of the plans and for the final inspection, plus a fair profit margin for the additional work involved, such as overhead costs and supervisory costs. With these figures at his finger tips, he contacted the builder, presented his suggestions for installing certified heating in the remainder of the houses in the project, and wound up with a new contract for 150 houses.

### Builder Recognizes Advantages

The builder was enthusiastic about this new sales tool and immediately included the certified heating feature in the advertisements he had been using to reach the prospective buyers of his houses. The builder now finds people are asking about the certified heating system. Now he is able to point out that it is guaranteed to deliver adequate heat to every room on the coldest day of winter. He proudly boasts that a certified warm air heating system is the house buyer's only assurance that his house will be comfortable when the outside air temperature is  $-5^{\circ}\text{F}$ .

Other points used by the builder — described to him by his heating dealer — are the extra cost involved to get the plans approved and the system inspected by a third party who has no financial interest; the fact that each dealer is bonded to assure that the guarantee will be carried out; the advantage of having the Cuyahoga County Sheet Metal Contractors Association directing every inspection to see that any faulty system is corrected.

### Plans Checked in Advance

In order to be sure that the heating system plans would meet with the approval of the examining engineer, each plan was checked for perimeter location of supply outlets and each was scrutinized to be sure that a correctly sized extended plenum was specified, that each supply register was fed by a separate duct run, that multiple return openings were provided, that adequate panned joist space was available for return air flow, that the thermostat was located in a central section of the house, and that the heat output of the furnace more than matched the heat loss of the building. All these points were checked against the procedures outlined in the manuals of the National Warm Air Heating and Air Conditioning Association.

Other housing project plans are now being processed for certified heating certificates. These will include some zone controlled systems in homes with larger floor areas and multiple levels. This is just another step the company is taking to sell the builders on providing the finest in heat comfort for the purchasers of his houses.



## AIR CONDITIONING HANDBOOK

How to Solve Engineering  
and Installation Problems

# Condensing Unit Maintenance Cuts Operating Costs

Acquainting servicemen with the fundamentals  
of condensing unit performance is a  
big step in improving customer good will and eliminating  
a common source of trouble in cooling systems

**By S. W. Reid**

**Air Conditioning Engineer  
Gilbert Associates, Inc.**

THE HEATING-COOLING dealer ordinarily isn't concerned with being able personally to make every type of repair necessary to keep a year 'round air conditioning system functioning at peak efficiency. He does, however, want to have enough know-how to enable him to advise service personnel properly about problems they encounter. Toward this end, the dealer is constantly receiving promotional literature which not only commends particular products but invariably expounds the simplicity of their application. An uninformed

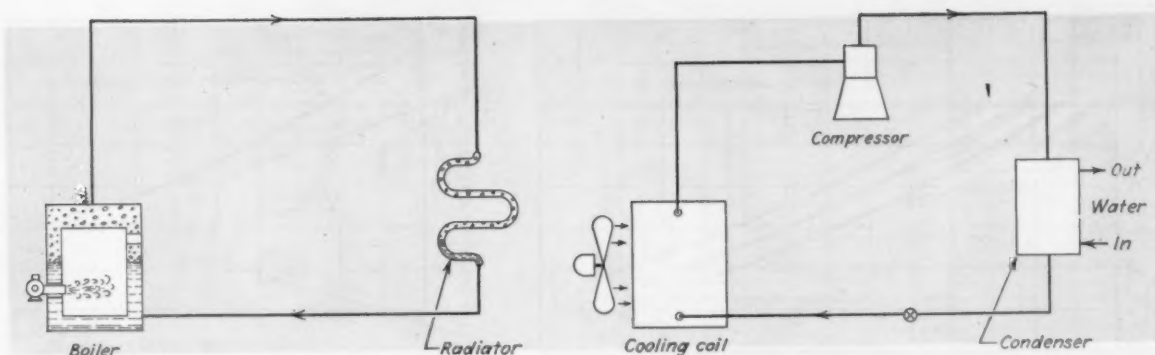
dealer can easily become a victim of well-intended but oversimplified installation procedures. There is no substitute for plain old fashioned study.

The application of summer air conditioning is not and may never be simplified to the degree which has been possible in the field of heating. This is not to say, however, that the principles of cooling systems can be understood only by those who specialize in this subject. It means only that there are a number of principles peculiar to its application which must

be understood and followed to provide maximum performance and best customer satisfaction.

This month's article is directed toward a very common condition which develops with operation of a summer air conditioning system. The dealer might receive a complaint from the owner that his system doesn't cool properly. Investigation reveals that dirty condenser tubes are causing operation at high head pressure. The dealer knows that such operation is not correct and must be informed to the point where he can explain to his





**1** STEAM HEATING system (left) and . . . **2** REFRIGERATION system are comparable in principle except that energy enters at two points (cooling coil and compressor) in the cooling system. Heat required to change liquid to vapor enters systems at boiler and at cooling coil; heat leaves systems at radiator and at condenser, reversing the change of state

serviceman how and why high head pressure operation reduces capacity and what its effects are upon the power requirements of the compressor. This type of background knowledge not only helps the dealer with his everyday problems, but also develops confidence and appreciation on the part of employees.

### Review Fundamentals

Let's take a look behind the scenes at the condensing unit which is operating with a high head pressure due to dirty condenser tubes. First, let us review the functions of a steam heating system, such as shown diagrammatically in Fig. 1. In operation, heat added in the boiler to water in the liquid state causes the water to boil and change to steam, or vapor. Steam flows through pipe to the radiator where the heat is given up to the air. Loss of heat causes a reversal of the state change which took place in the boiler. Thus, in the radiator, water in the vapor state is constantly changing back to water in the liquid state. A pound of liquid water occupies much less space than a pound of vapor. The process in the radiator is, therefore, a condensing process.

Looking now at Fig. 2 we see a mechanical refrigeration system with its components arranged to correspond to the elements in Fig. 1. The processes taking place in the cooling coil and condenser are basically the same respectively as the processes taking place in the steam boiler and radiator. Heat from the air is caus-

ing refrigerant liquid to boil and change to refrigerant vapor. The vapor flows (with the aid of the compressor) to the condenser where, because heat is removed, it returns to

the liquid state. Just as with water, a pound of refrigerant liquid occupies much less volume than does a pound of refrigerant vapor.

### Refrigerant Must Be Reused

In Fig. 1 the steam system is closed, that is, water from the radiator returns to the boiler where it is reused. The system could function equally well if it were open. In this case, new makeup water from some source must constantly replenish water which drains away from the radiator. District heating systems often operate in this manner when it is more economical than to maintain an elaborate return system.

It would be possible to achieve cooling with an open system. All that would be necessary would be a constant supply of liquid refrigerant and a cooling coil with air moving across it. Liquid refrigerant from the source would flow into the coil where it would boil off to vapor and be allowed to escape to the atmosphere. Heat absorbed by the boiling refrigerant from the air passing through the coil would, of course, cause a reduction in the air temperature.

As noted above in the case of the heating system, operation where condensate is not returned to the boiler is quite economical under certain circumstances partly because of the relatively low cost of the water which is wasted. In the case of the cooling system, however, the operation described above which wastes refrig-

### THIS CONTINUING SERIES OF ARTICLES COVERS . . .

. . . all aspects of residential cooling, beginning in the August, 1952 Artisan with a complete rundown on:

#### FUNDAMENTALS . . .

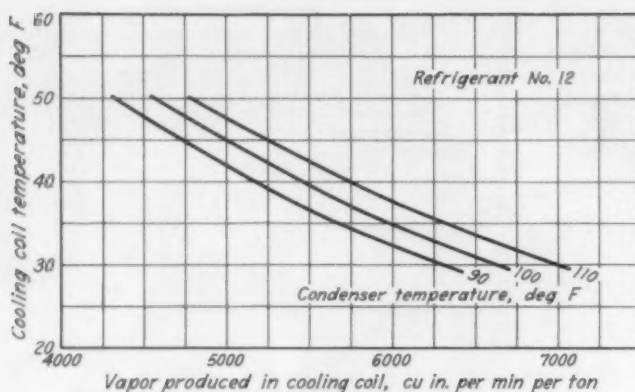
. . . in a series of 20 articles which described the basic operating conditions of residential cooling equipment. Next, we turned to:

#### SPECIFIC PROBLEMS . . .

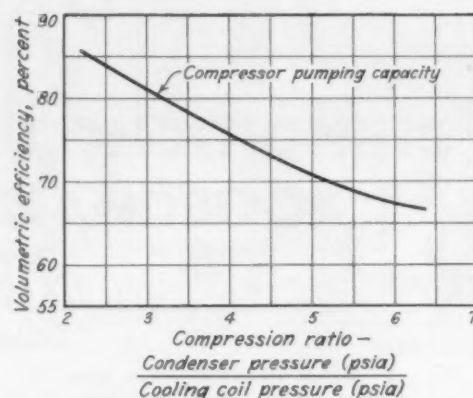
. . . of maintenance, service, installation and management, describing new techniques and presenting pointers on solving problems common to residential cooling. The current series describes:

#### CASE HISTORIES . . .

. . . and known problems which have actually been experienced and reported by dealers. Engineering, installing and servicing of cooling systems and their components are discussed by the author in answer to actual problems expressed by industry members.



**3** AMOUNT OF VAPOR produced from fluorinated hydrocarbon refrigerant no. 12 in cooling coil is determined by evaporator and condenser temperatures



**4** INCREASING OPERATING pressure differences reduces compressor pumping capacity

erant would be out of the question from the standpoint of cost alone. Recovery and reuse of refrigerant is absolutely essential, and it is largely for this purpose that the compressor and condenser are used. The combination of these two components is known as a condensing unit.

### Energy Enters at Two Points

Before leaving Figs. 1 and 2 there is one more observation we should make. Theoretically, if all losses are ignored, energy enters the closed heating circuit at only one point, the boiler, and leaves the circuit at only one point, the radiator. In other words, the same amount of heat which enters the water from the combustion process in the boiler will be given up at the radiator to the air. Compare this process to that of the cooling system where energy enters the closed circuit at two points, the cooling coil and the compressor, and leaves at only one point, the condenser. The refrigerant in the cooling coil receives heat from the air. As it passes through the compressor it receives additional energy. The energy which the refrigerant must impart to the cooling medium passing through the condenser is the sum of these two amounts of energy. At reasonable evaporator and condenser temperatures, the amount of heat entering the system through the evaporator is two to six times the amount of energy (in terms of heat) which

enters the system at the compressor. This fact makes the heat pump attractive for certain applications.

### Capacities Are Balanced

We have already established that in the evaporator or cooling coil, liquid, by absorbing heat from the air, is changing to refrigerant vapor. From basic refrigerant property data we can determine for any combination of evaporator and condenser temperatures how many pounds of refrigerant must be evaporated to absorb heat at the rate of one ton (12,000 Btuh) and how many cubic inches of vapor will be produced in

the process. Fig. 3 is a graphical summary of the latter for fluorinated hydrocarbon refrigerant no. 12. Note that any change which increases the difference between condenser and evaporator temperatures also increases the amount of vapor produced.

In a refrigeration system the rate at which vapor is produced in the cooling coil is always in balance with the rate that vapor is removed from it by the compressor. In other words, cooling coil capacity is always in balance with compressor capacity, as we discussed last month.

Suppose it is necessary to select a compressor to match a cooling coil with a capacity of 3.2 tons when the air entering is 67 F WB and the refrigerant temperature is 40 F. The desired condenser temperature is 100 F. From Fig. 3 we determine that the cooling coil will produce 5450 cu in. of vapor per minute per ton or a total of 17,440 cu in. vapor per minute which the compressor must remove and pass on to the condenser.

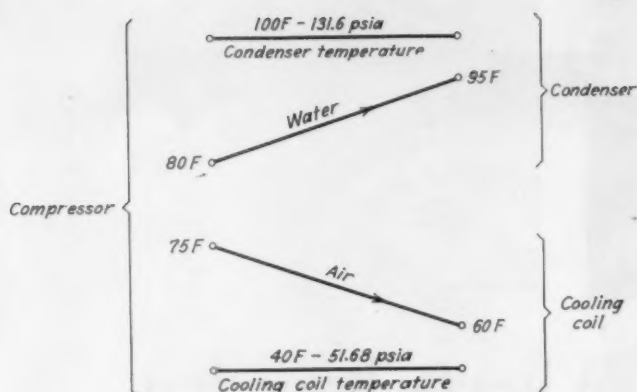
### Losses Reduce Pumping Rate

The theoretical pumping rate of a reciprocating compressor is the volume swept by its pistons with each revolution of the crank shaft times the rpm of the shaft. The actual pumping rate is less than the theoretical rate because of unavoidable losses, among which are the following: 1) superheating of entering vapor by warm cylinder walls, caus-

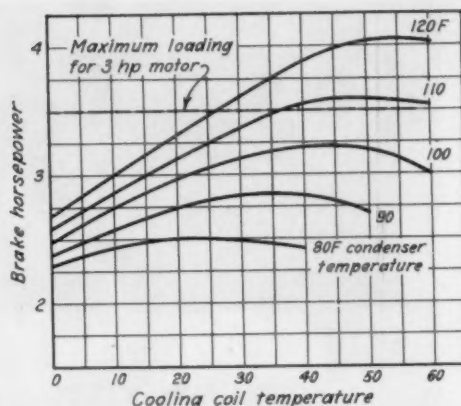
### What Is 'Air Conditioning?'

**True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air-Conditioning Engineers. The ASHAE has just adopted a new, simplified definition of air conditioning, which reads as follows:**

**"Air conditioning is the process of treating air so as to control its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."**



**5** OPERATING TEMPERATURE of compressor in cooling system ranges from 40 to 100 F with typical cooling coil-condenser temperature levels



**6** HORSEPOWER RATING for 3 hp hermetic compressor is affected by changes in condenser temperature with given evaporator temperature

ing an increase in vapor volume; 2) friction loss through valves and ports, causing a pressure drop; 3) re-expansion of compressed vapor which remains in the cylinder due to necessary clearances, causing a reduction in the amount of new vapor which can enter.

The actual volume of vapor pumped by a compressor, as determined by test, is expressed as a percentage of the theoretical and is known as the volumetric efficiency. As shown in Fig. 4, it varies with the compressor suction and discharge pressures. The more difference between these two pressures, the lower the efficiency.

Figs. 3 and 4 show what happens to the capacity of a cooling unit when an air filter becomes clogged or a condenser becomes dirty causing a drop in suction pressure and a rise in discharge pressure respectively. In either or both cases, Fig. 3 shows that more vapor must be handled for each ton. Because of its fixed speed and displacement, it is not only impossible for the compressor to handle the additional vapor necessary to maintain tonnage, it is also impossible, as shown by the fall in efficiency in Fig. 4, for it to handle as much vapor as it did at the lower original compression ratio.

### Pressure Ratios Affect Vapor

From the standpoint of the compressor alone, the preceding discus-

sion shows that the closer together its operating pressures, the more vapor it can handle and, on this basis, the more cooling capacity it has. The compressor, of course, is not the only component of a cooling system. Its operating pressures are not independent but must be such that they permit proper operation of the cooling coil and condenser. This point is illustrated in Fig. 5 which shows a simplified temperature relationship of a cooling system. The system cools air from 75 to 60 F with an evaporator temperature of 40 F. For condensing purposes, water at 80 F is available in sufficient quantity to maintain 95 F water leaving temperature.

A condensing temperature of 100 F is to be maintained.

The compressor for the system would operate between 40 F and 100 F.

We know that a smaller compressor having less displacement could be used if these temperatures could be brought closer together. However, this would reduce the temperature potential available for heat transfer from air to the refrigerant and from the refrigerant to water. This would in turn require a larger cooling coil and condenser to handle the same amount of heat. Conversely, an increase in the temperature potentials would permit using a smaller cooling coil and condenser but would require a compressor having more displacement.

So far we have discussed the influence of operating temperature levels upon only the size of equipment. We must not overlook the relationship between these temperatures and compressor horsepower. The owner of a cooling unit pays for electrical energy. Unavoidably, he must always pay for more than is theoretically necessary to compress the refrigerant. The additional energy is needed to overcome frictional and other losses in the compressor and motor.

The horsepower requirement for a compressor is determined by test. Fig. 6 shows a typical set of horsepower rating curves for a 3 hp hermetic compressor. The important points to note are that for a given evaporator temperature, a rise in condenser temperature causes a rise in horsepower and that a change in condenser temperature has much more effect upon horsepower than does a corresponding change in evaporator temperature.

Recalling the viewpoint taken earlier, that the condensing unit is employed in a cooling system largely to recover the refrigerant so that it can be reused, it would seem that this part of the process should be as efficient as possible. It has been shown that design for low condensing pressure keeps the compressor size — and presumably its initial cost — as low as possible and operation at low condensing pressure keeps the operating cost as low as possible.



## Shops-on-Wheels Broaden Contractor's Heating Market

Rural location doesn't restrict the business volume of this contractor — he takes his mobile truck-shops to four states to install either complete heating systems or air distribution systems for furnace dealers



INDIVIDUAL ROUTE FILES tell complete story of each shop-on-wheels. Treasurer Burton H. Sperry takes order for installation, checks work loads of trucks

ONE SHEET METAL contractor whose business isn't limited by his rural location is C. C. Chappell, president of Chappell Duct Co., Willmar, Minn. He sends his fleet of six shop-equipped trucks out to a far-flung territory where he serves small furnace dealers in remote areas and sub-contracts for complete heating systems.

For the furnace dealers, the firm will engineer the complete air distribution system, supplying and installing duct work and supply and return registers. As complete heating system subcontractors they also supply and install a furnace of the correct Btu capacity.

In either case, the procedure is as follows:

- 1) The furnace is delivered.
- 2) A Chappell company truck, fully equipped for on-the-job fabrication, arrives with a crew of three or four men aboard.
- 3) Duct work fabricated in the shop at company headquarters is carried into the house and erection is started, while any necessary custom fittings are quickly made in the truck.

### Streamlined System Speeds Work

The average heating system is ready for operation within eight hours.





**COMPLETELY EQUIPPED** truck, manned by crew of three or four, has all shop tools necessary to fabricate special parts, provides ample work space



**WIRED AND INSULATED** shops-on-wheels pull up in front of home, extension cord is plugged into convenient outlet, and parts are fabricated as needed

Rather than cause any additional delay if the furnace doesn't arrive on schedule, the crew will put in all the duct work and hang the furnace plenum. When the furnace arrives it is moved into place under the plenum and the connection is completed.

In housing project installations, two men from the Chappell company are stationed at the project site until work is completed. Materials are sent by truck and local sheet metal workers are hired to do the installation work.

The company was started in 1945 by Mr. Chappell, who had been in the sheet metal and duct fabrication business for some time, and realized the potential of a shop which could be moved from job to job, fully equipped to install a heating system on the spot and carrying enough material to last through a carefully scheduled work tour.

The new business grew rapidly, now serves 300 dealers regularly and grosses a half million dollars annually. The company's work is exclusively warm air heating, with central cooling rapidly growing in importance in its operation.

Forty men are employed in the home shop and the shops-on-wheels.

### **Mobile Shops Are Weatherproof**

The mobile shop, pivotal point in the company's operation, is an ordinary 2 or 3 ton truck with a 16 ft van, completely insulated (a small gas heater provides comfortable working conditions during cold weather) and electrically wired. An extension cord plugs into any convenient electrical supply located at the job site. Each truck is equipped with a 5 ft brake, electrically operated Pittsburgh lock former, edger, crimper and all the usual small hand tools used by a journeyman sheet metal worker.

A work bench extends the length of one side of the

van; built-in compartments contain ready made fittings, registers and galvanized sheet metal for making any special fittings required.

Crews vary in size from three to four men, depending on the nature of the work. Crews working within a radius of about 100 miles of Willmar ordinarily are gone for a week at a time. Those travelling beyond the 100 mile radius of the home office are usually out two weeks.

By increasing the amount of prefabrication done at the home shop the firm has been able to economize by replacing the semi-trailer trucks used originally with the smaller models.

### **Experienced Crews Maintain High Standards**

While Mr. Chappell does a great deal of personal supervising in the field, the policy of consistent high standards for work done is further safeguarded by arranging the crews so only one relatively new man is assigned to each four-man team. "It takes about two years for a man to become a specialist," Mr. Chappell comments. Most of his foremen have been with the company since its origin.

Work volume is maintained on an even level by several methods. Constant sales effort is obviously important. Two full time salesmen and one part-time man contact dealers throughout the four state area which includes North and South Dakota and the northern parts of Kansas and Nebraska.

### **Modernization Jobs Continue Through Winter**

Where new heating systems are installed in modernization jobs, it is often possible to complete the entire changeover in less than eight hours because the system has been engineered and the duct work fabricated prior to starting the job, and because special fittings can be



**HOME BASE**, in heart of four-state area, is comprised of office, large shop and warehouse. Trucks (right) are routed to remote areas for heating installations



**STANDARD COMPONENTS** of air distribution systems are fabricated in permanent shop at company headquarters, are sent out as needed by truck-shops

made rapidly. These features make it possible to perform modernization work every day of the year since the furnace is not out of operation for any significant length of time. A complete installation in a new home ordinarily requires four or five hours; in an older home the job takes eight to twelve hours of actual installation time — the interruption in heating service usually extends only two to three hours.

#### **Firm Helps Rural Dealers' Business**

In the sparsely populated areas served by the Chappell company, rural furnace dealers often perform other types of service for the community due to the limited market for heating systems. Economically, too, these furnace dealers must rely more widely on the experience of outside specialists in their heating jobs. This is how the Chappell firm cooperates with these remotely-located furnace dealers:

The dealer sells the job, using the price sheet furnished him by the Chappell company to arrive at a proper total figure. Any unusual aspects of the job are referred to a

Chappell representative or mailed to the company in the form of a rough layout for completion of the estimate and final layout. An engineer at the home office is continuously at work making layouts for home or small commercial heating systems. Layouts are furnished the dealer without charge. A blueprint machine turns out any number of copies needed.

#### **Schedules Minimize Lost Time**

The layout engineer also does the scheduling for the shops-on-wheels so there is a minimum of delay, mistakes and re-routing.

"Even during the rush season it never takes more than two weeks from order to completed job," Mr. Chappell says.

The company handles all callbacks on its jobs without charge, and will go out and balance the system after installation if the dealer desires.

Although most of the Chappell firm's business is in residences, it also installs systems in churches, schools and other commercial buildings.

## **How to Get Best Results in Fabricating Stainless Steel**

OBSERVING EIGHT points will enable sheet metal contractors to achieve the best results in fabricating stainless steel with standard shop tools:

1) Use more power. Forming, shearing and other operations require more power to compensate for strength and toughness of stainless steel.

2) Adjust capacities. Greater strength of stainless steel generally requires reduced gage capacity for equipment (normally figured as 4 or 5 gages lighter than for galvanized or hot rolled steel).

3) Keep contact parts smooth.

Dies, rollers and brake blades should be free from nicks and burrs to keep metal surfaces attractive and unmarred.

4) Protect polished sheets. Adhesive tape on tool contact areas, adhesive paper or wrapping paper pasted on metal surfaces will keep polished stainless steel sheets unscratched and clean during fabrication and handling.

5) Keep blades sharp. Use sharp, closely adjusted, high quality blades for all shearing and cutting operations.

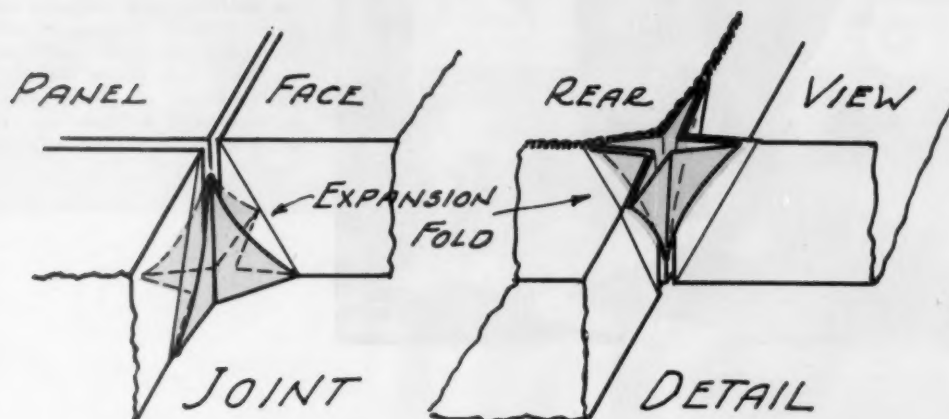
6) Watch heat buildup in weld-

ing. Prevention of heat buildup at the weld is more important for stainless steel than for carbon steels, even though welding procedures are the same. Properly sequenced welding operations, jigs and other means of drawing off the heat should be used.

7) Wash off soldering flux. All flux should be removed with plenty of clean water, immediately after soldering.

8) Use stainless steel fasteners. Other types of fasteners can bleed unsightly rust onto an otherwise fine stainless steel job.

# Metal Expansion Fold Weatherproofs Curtain Wall Panel Joints



EDGES OF PANELS are welded together just short of corner intersection where copper expansion fold is inserted and welded in place

By Henry E. Voegeli  
American Brass Co.

**Deep drawn expansible metal inter-sections, inserted at corners of panels, not only resist wind, snow and rain but also absorb contraction and expansion movement of panels**

ONE OF THE PROBLEMS encountered by erectors of metal curtain wall panels is the sealing of the joints between panels, at both the sides and the ends. The common practice has been to use a pliable mastic material to prevent water from working its way into the space between panels and causing deterioration of the metal surfaces.

## Copper Fold Welded to Panels

Recent research has been responsible for the development of a new approach to joining metal panels. Tests

show the outside sheets can be welded along the return flanges at the inner edge. Welding of the two edges of a panel is stopped just short of the corner joint. Where four panels meet at the corner, an expansion fold fabricated from sheet copper is inserted. The edges of the expansion fold are then welded to the individual edges of the panel to provide a wind-tight and weatherproof joint.

## Joint Relieves Stress on Panel

Front panel sheets are held in place by the method specified by the design engineer; therefore, welding the inner edges of the outside sheet doesn't offer any additional erection problems outside of the welding operation. The supports for each panel make it possible for the movement of the metal, brought about by expansion or contraction due to temperature change, to be gradual and without distortion of the exterior panel surface.

The metal expansion folds at the corners are intended to be relatively thin so they will yield easily to the forces of expansion or contraction. The expansion fold has been patented and will soon be commercially available.



COMPANY COOPERATION IS pointed out in meetings to talk over engineering and installation points on each job. James Westfall (center), president of Southern Heating and Air-Conditioning Co., meets with Clinton Williams (left), chief engineer, and George King, shop superintendent, to iron out different viewpoints in each phase of an installation

**Organization  
Promotion  
Sales Impact**

## **The Proper Blend**

**By placing emphasis on close departmentalization, a systematic advertising schedule and a hard-working sales force, this dealer has achieved outstanding business success**

GOOD ORGANIZATION, well-planned advertising, a hard-working sales force — three separate elements, but like the chords of a musical score, they can be blended into a harmonious whole and become the keys to a successful business operation when put together by a skillful director.

James Westfall, president, Southern Heating and Air-Conditioning Co., St. Louis, realized the importance of these three elements in the success of a heating-cooling business many years ago. He sat down and outlined an operational blueprint which has led to outstanding success and a smooth-running operation

Fundamentally, the foundation of Southern Heating and Air-Conditioning Co. is laid on its strict departmentalization, with one man responsible for each department, and close liaison between the departments, with Mr. Westfall as the leader.

### **Meetings Instruct Employees**

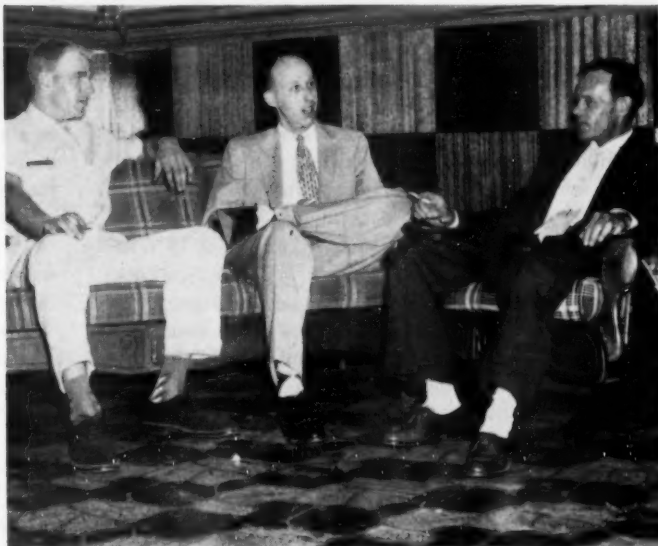
Liaison between the various departments takes the form of weekly and monthly meetings in which subjects ranging from sales techniques to air delivery requirements are discussed. Once a month the entire staff meets





◀ **MODERN TOOLS HELP** to keep fabricating costs at a minimum. Leonard Hosach assembles a reducing offset fitting for a cooling installation

**SALES FORCE COOPERATION** plays a big part in Southern Heating and Air-Conditioning Co. Members of the sales department, Russell Richter, Herb Waser and Joe Bradburn, (l to r), meet to discuss sales and advertising plans ▼



## for Success

in Mr. Westfall's "rathskeller," a combination meeting and recreation room located at the rear of his sheet metal shop. During the instructional meeting the subject for discussion might include control systems, installation procedures, ways to improve selling techniques, or points to add in future advertising. The only point which makes the meetings similar from month to month is their purpose—to instruct and aid the employees—which will be reflected in improved company operations.

Once a month the department heads get together with Mr. Westfall for hashing out of problems which arose since the last meeting. At this time George King, shop superintendent; Clinton Wieman, engineering; Herb Waser, sales manager and Burnell Westfall, outside foreman will meet with Jim Westfall to discuss the entire operation. Departmental problems are brought out by each individual; they are discussed and efforts are made to iron out the difficulties faced by each department. Time saving ideas and devices also are discussed, which, when put into practice, often result in more efficient running of the operation.

The advertising, centered on an active and systematic newspaper insertion schedule, is handled by Mr. Waser.

The schedule is broken down into two periods—January to July when cooling is promoted and August to December when advertising money goes toward promoting heating equipment.

The cooling promotion starts in January during the St. Louis home show when the company runs a half-page ad in one of the St. Louis daily newspapers. From this one ad, plus contacts made during the home show, the company usually will get enough leads and sales to keep the shop and sales force busy for about 45 days. Last January the firm had 34 leads resulting in 21 sales from this half-page ad and the home show alone.

### Weather, Success Dictate Schedule

Mr. Waser will follow up the kick-off ad with a series of 5½ and 7¾ in. wide ads, but two factors help to dictate the schedule: 1) the weather and 2) success of each ad. Last February St. Louis experienced a month of heavy snow, sleet and rain—weather which is unlikely to stimulate the purchase of cooling equipment. During the five day period following an ad insertion, Mr. Waser received only 15 leads and made nine sales. So now dur-

ing a sign of bad weather in the winter months, the advertising schedule might be trimmed.

### Heavy Ad Schedule in Summer

Conversely, summer will bring on a heavy advertising push when the consumer would most appreciate having cooling installed. Also, if one of the smaller ads continues to bring calls, Mr. Waser will keep it in the paper until it ceases to pull, or the order of jobs is so large the shop cannot handle them all. A  $\frac{7}{8}$  in.  $\times$   $3\frac{1}{2}$  in. spot ad is left on the comic page of the newspaper as a reminder for two months following one of the big display ads.

The basic appeal used by the company is the objection offered so often when talking about summer air conditioning—price. The ads point out: "Air Conditioning for the Millions Not Just the Millionaires."

"We select some hard hitting item in our advertising," Mr. Waser explained, "and push it—like cooling a house containing anywhere from 1000 to 1400 sq ft of floor area with a central system for \$995. We had a call one time from a man who had read our ad and wanted the \$995 system. But our engineers found when making a survey of the house it would cost considerably more to put in a system to do the right kind of job. Our salesman pointed out to the prospect that the size of the house would require a much larger unit because of excessive heat loads due to glass areas, orientation and use. Once we get a call resulting from one of the ads we don't try to sell the cheaper system if the size of the house calls for a larger unit. We tell the prospect exactly what is needed."

### Ads Answer Most of the Questions

The ads answer most of the first questions a prospect for a cooling system would want to ask: price, terms, the size unit needed for a certain home. A coupon for a free estimate is also included in the ad. A half-page ad (15 $\frac{1}{2}$  in. wide) which ran during March promoted two and three ton units, which could be attached to the existing warm air heating system for year 'round air conditioning. Included in a box at the top of the ad is a reminder to the prospect of hot days ahead: "July, 1954—Mercury hits record 112.3 deg in St. Louis heat wave. High humidity recorded," reads one box. Right next to this reminder is another box giving a testimonial: "Wall Street Journal predicts all homes from \$10,000 price bracket to have central air conditioning."

Another ad—a three column (5 $\frac{5}{8}$  in.)  $\times$  9 in. display—uses the central theme established by the company: "Summer Air Conditioning Can Be Enjoyed by the Millions Not Just the Millionaires." Down the left side of the ad there are drawings of typical houses found in the St. Louis area and below each house the floor area is given. On the right side appears the approximate price for a central cooling system which would be required for that floor area. In each case 10 percent of the original purchase price will be deducted if the installation is

made during April or May, an added incentive for the prospect to react immediately rather than to put it off until the hot summer months have arrived.

Mr. Waser and Mr. Westfall have adopted a formula for maintaining a steady advertising schedule in the St. Louis papers. They decided that two percent of all gross sales would be used as advertising money. Most of this is spent in newspapers. Radio is used one week only for cooling promotion and there is some direct mail, but no systematic plan has been developed for the latter two media.

### Satisfied Customers Spread the 'Word'

Mr. Westfall believes, however, the best advertising is a satisfied customer, so great care has been taken to make each customer just that—a spokesman for Southern Heating and Air-Conditioning Co. to his neighbors and relatives.

The company's attentive regard for the customer's wishes both before and after a sale has made many of the company's customers good-will ambassadors. Mr. Waser figures to receive one and sometimes two leads for future installations from each satisfied customer, who tells friends and relatives about the service he received from the firm.

### Salesmen Pull Their Share of Load

But without a strong sales force, the well-planned advertising campaign and carefully-organized company will not be effective. The three work together. Southern Co. has such a sales force, Mr. Westfall believes. Working under Mr. Waser are five full time salesmen.

"We have young men on the sales force—they are all in the twenties or early thirties, so that makes for more energetic action from the salesmen," Mr. Waser explains.

Variety of personalities among the salesmen also helps the overall operation of the sales department. If Mr. Waser receives a call from a prospect who has moved to St. Louis from a rural area, he has a salesman he can send who will be able to talk the prospect's "kind of language." Or if a college professor calls, Mr. Waser has a salesman to fit this need. Mr. Waser finds it much easier to gain the prospect's confidence and in turn to make a sale when the salesman can talk about subjects of interest to the prospect.

All leads come across Mr. Waser's desk where he keeps a weekly log sheet. This way he can check the pull of ads and thereby base his advertising schedule on the effectiveness of each individual ad.

The company's promotional campaign came in for some honors recently when the Washington University (St. Louis) advertising department picked a Southern Co. ad as the "ad of the month" from the St. Louis newspapers. Mr. Waser visited one of the university's advertising classes to give some details of the company's sales promotion and its organization.

SUMMER PREVENTIVE SERVICE REPORT																																																			
<p><b>OILS, Incorporated</b> S. W. 6th and Murphy Des Moines, Iowa</p> <p>Inspection Date _____ Zone No. _____</p> <p>Inspector's Name _____</p> <p>Owner's Name _____ Phone _____</p> <p>Address _____</p> <p>Work Done At _____</p> <p>Name _____ Phone _____</p> <p>Removed and cleaned Constant Level, Oil Control or Solenoid Valve Screens</p> <p>Inspected Oil Filter</p> <p>Inspected and cleaned Oil Tubes</p> <p>Inspected Hearth and checked for air leaks</p> <p>Inspected Flame Ring and Grilles for proper setting and spacing</p> <p>Inspected Combustion Chamber (pressure burner)</p> <p>Inspected Rings and Pot</p> <p>Inspected and cleaned Nozzle</p> <p>Inspected, cleaned and adjusted Ignition Assembly</p> <p>Inspected and oiled Burner Motor</p> <p>Inspected all connections for oil leaks</p> <p>Inspected and cleaned Stackswitch</p> <p>Inspected Fan and Limit Control</p> <p>Inspected and cleaned Thermostat</p> <p>Inspected and oiled Blower and Motor</p> <p>Inspected and adjusted Blower Belt and Pulley</p> <p>Inspected Air Filters; cleaned permanent type</p> <p>Inspected and oiled Bearings on Draft Regulator</p> <p>Inspected Automatic Humifier and Humidifier Plates</p> <p>Resealed Furnace Doors</p> <p>Inspected Smoke Pipe and Chimney</p> <p>Inspected Chimney Clean-out Door and sealed if necessary</p> <p>Ran combustion efficiency tests; adjusted Burner if necessary</p> <p>Special Instructions _____ Accepted: _____</p> <p>Customer Signature _____</p> <p>Invoice No. _____ Date _____ Job N<sup>o</sup> <b>4157</b></p>	<p><b>CONVERSION BURNER:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Burner Make _____ Model _____</td> <td style="width: 50%;">In Furnace _____</td> </tr> <tr> <td>Type Burner _____</td> <td>Make _____ Model _____</td> </tr> <tr> <td>Rating (G.P.H.) _____</td> <td>Cust. Steel Fire Box Dia. _____</td> </tr> <tr> <td>Comb. Chamber Size _____</td> <td>Gravity _____ Conversion Blower _____</td> </tr> <tr> <td>Flame Ring Size _____</td> <td>B.T.U. Bonnet Output _____</td> </tr> <tr> <td>Comb. Chamber Mat'l _____</td> <td>Rating _____</td> </tr> <tr> <td></td> <td>Smoke Pipe Size _____</td> </tr> </table> <p><b>DESIGNED UNIT:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Furnace Make _____ Model _____</td> <td style="width: 50%;">Gravity _____ Forced-air _____ Type Burner _____</td> </tr> <tr> <td>B.T.U. Bonnet Output _____</td> <td></td> </tr> <tr> <td>Comb. Chamber Mat'l _____ Size _____</td> <td></td> </tr> <tr> <td>Flame Ring Size _____ Nozzle Size _____ Oil Rate _____</td> <td>Smoke Pipe Size _____</td> </tr> </table> <p><b>CONTROLS—Warm Air</b> (List Make and Model)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Stackswitch _____</td> <td style="width: 50%;"></td> </tr> <tr> <td>Comb. Fan &amp; Limit _____</td> <td></td> </tr> <tr> <td>Fan Control _____</td> <td></td> </tr> <tr> <td>Limit Control _____</td> <td></td> </tr> <tr> <td>Thermostat _____</td> <td></td> </tr> </table> <p style="text-align: center;"><b>ADDITIONAL INFORMATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Fuel Tanks: No. _____ Capacity each _____ Inside _____ Outside _____ Buried _____</td> <td style="width: 50%;"></td> </tr> <tr> <td>Fill Pipe &amp; Vent Pipe Installation—Good _____ Fair _____ Poor _____</td> <td></td> </tr> <tr> <td>Fill Pipe Size _____ Vent Pipe Size _____</td> <td></td> </tr> <tr> <td>Nuke of Oil Filter Cartridge _____ Model _____ Vent Alarm—Yes _____ No _____</td> <td></td> </tr> <tr> <td>CO<sub>2</sub> _____ Draft _____ Stack Temp. _____ Smoke _____</td> <td></td> </tr> <tr> <td>Automatic Humifier _____ Make _____ Model _____</td> <td></td> </tr> <tr> <td>Humidifier Plates—Yes _____ No _____</td> <td></td> </tr> <tr> <td>Air Filters—No. _____ Size _____</td> <td></td> </tr> <tr> <td>Circulating Pump(s) _____ Make _____ Size _____</td> <td></td> </tr> </table> <p><b>Miscellaneous Data</b> _____</p>	Burner Make _____ Model _____	In Furnace _____	Type Burner _____	Make _____ Model _____	Rating (G.P.H.) _____	Cust. Steel Fire Box Dia. _____	Comb. Chamber Size _____	Gravity _____ Conversion Blower _____	Flame Ring Size _____	B.T.U. Bonnet Output _____	Comb. Chamber Mat'l _____	Rating _____		Smoke Pipe Size _____	Furnace Make _____ Model _____	Gravity _____ Forced-air _____ Type Burner _____	B.T.U. Bonnet Output _____		Comb. Chamber Mat'l _____ Size _____		Flame Ring Size _____ Nozzle Size _____ Oil Rate _____	Smoke Pipe Size _____	Stackswitch _____		Comb. Fan & Limit _____		Fan Control _____		Limit Control _____		Thermostat _____		Fuel Tanks: No. _____ Capacity each _____ Inside _____ Outside _____ Buried _____		Fill Pipe & Vent Pipe Installation—Good _____ Fair _____ Poor _____		Fill Pipe Size _____ Vent Pipe Size _____		Nuke of Oil Filter Cartridge _____ Model _____ Vent Alarm—Yes _____ No _____		CO <sub>2</sub> _____ Draft _____ Stack Temp. _____ Smoke _____		Automatic Humifier _____ Make _____ Model _____		Humidifier Plates—Yes _____ No _____		Air Filters—No. _____ Size _____		Circulating Pump(s) _____ Make _____ Size _____	
Burner Make _____ Model _____	In Furnace _____																																																		
Type Burner _____	Make _____ Model _____																																																		
Rating (G.P.H.) _____	Cust. Steel Fire Box Dia. _____																																																		
Comb. Chamber Size _____	Gravity _____ Conversion Blower _____																																																		
Flame Ring Size _____	B.T.U. Bonnet Output _____																																																		
Comb. Chamber Mat'l _____	Rating _____																																																		
	Smoke Pipe Size _____																																																		
Furnace Make _____ Model _____	Gravity _____ Forced-air _____ Type Burner _____																																																		
B.T.U. Bonnet Output _____																																																			
Comb. Chamber Mat'l _____ Size _____																																																			
Flame Ring Size _____ Nozzle Size _____ Oil Rate _____	Smoke Pipe Size _____																																																		
Stackswitch _____																																																			
Comb. Fan & Limit _____																																																			
Fan Control _____																																																			
Limit Control _____																																																			
Thermostat _____																																																			
Fuel Tanks: No. _____ Capacity each _____ Inside _____ Outside _____ Buried _____																																																			
Fill Pipe & Vent Pipe Installation—Good _____ Fair _____ Poor _____																																																			
Fill Pipe Size _____ Vent Pipe Size _____																																																			
Nuke of Oil Filter Cartridge _____ Model _____ Vent Alarm—Yes _____ No _____																																																			
CO <sub>2</sub> _____ Draft _____ Stack Temp. _____ Smoke _____																																																			
Automatic Humifier _____ Make _____ Model _____																																																			
Humidifier Plates—Yes _____ No _____																																																			
Air Filters—No. _____ Size _____																																																			
Circulating Pump(s) _____ Make _____ Size _____																																																			

SERVICE REPORT doubles as customer's receipt and check list (left) to insure complete inspection of the system by service man. Installation record (right), on back side of file copy, serves as a valuable reference for service department

# Preventive Maintenance Means Fewer Service Calls

... as well as better customer relations,  
leads for additional sales, balanced work loads and  
economical operation. Here are some tips on how to make  
your service department pay off

**By Miles M. Mills**

PREVENTIVE SERVICE involves a knowledge of the most common sources of trouble with equipment and the steps that should be taken to guard against these potential danger areas which might be responsible for equipment inefficiency or failure. Of course, lesser but still potential

trouble sources are uncovered and dealt with through inspection procedure. The terms preventive service or preventive maintenance refer to detection and repair of actual defectiveness which would cause trouble at a later date.

In practice, preventive service

often consists of a quick glance at the fire and a check of the thermostat. This practice must be discouraged and eliminated in the light of growing competition from other sources of heat and the consequent necessity of providing less expensive, more efficient service.

### **Periodic Check Cuts Callbacks**

Preventive service may be carried out in a number of different ways. One common form, the service contract, aims at reducing calls by taking preventive measures during a regular checkup and overhaul or during the course of an emergency service call.

Preventive service as part of a routine service call, not covered by contract, finds wide acceptance. Most dealers encourage and develop practices of this type on the part of the service man answering the emergency call. The annual inspection that many dealers offer represents another popular form of preventive maintenance.

### **Improves Public Relations**

One factor that contributes to the importance of preventive service arises from the apparent difference in service requirements between gas and oil heating equipment. There is some validity to the contention that oil heating equipment generally requires more servicing than gas fired equipment. At any rate, the public has become more and more aware that such a difference exists, due to effective promotional work by gas equipment suppliers. There can be no stronger weapon for an oil heating man to use to combat this thinking than a progressive preventive service program which actually does reduce customer calls.

### **Good Service Trims Payroll**

Many advantages accrue from effective service efforts. One of these is a reduction in the number of service men required to keep up with service demand. Although a little more time may be devoted to each call, the overall effect is reflected in manpower economy. As an example, since our company became seriously engaged in a preventive service program, we have been able to cut our service staff almost in half. Furthermore, this economy in numbers, together with continued emphasis on superior service standards, has led to employing more highly qualified and efficient

service personnel, capable of servicing all the different types of domestic burners. Although we now pay a higher wage scale than previously, the end results make it profitable.

### **Service Develops Confidence**

As a sales tool for obtaining new customers, preventive service ranks among the most noteworthy. In our case, the annual inspection service program often has been the most important single feature that has sold prospects on purchasing from us. Developing the confidence in the new prospect that our company is genuinely concerned with the well being of its customers undoubtedly represents the key to the success we have experienced in using preventive service as a promotional aid.

We accomplish our aim with publicity, near the end of the heating season, which builds up the importance of the special inspection service. The publicity material generally is included with our annual, low cost letter of thanks for past business that goes to each customer.

### **Steps Up Slow Periods**

One of the greatest benefits to service departments that have preventive service programs and do off-season maintenance work is derived from work created during the normally slow season of the year. Inspections themselves provide activity for the service personnel. During these calls discovery of a need for major repairs, alterations or improvements leads to attractive profits. These include, among others, furnace resetting; installation of new combustion chambers; replacement of nozzles, oil and air filters, tank gages, humidifiers and humidifier plates; sale of filler vent warning devices and delayed action oil valves; and, finally, the replacement of a furnace. Many more items belong on the list and they can all bring in more profits.

### **Opens Door to More Sales**

In addition to the above profit builders, preventive service work pro-

vides an entre to the sale of heating accessories or other types of equipment, such as air conditioners, dehumidifiers and hot water heaters. For instance, a service man who goes into a damp basement during a summer inspection has an ideal opportunity to sell a dehumidifier by pointing out that dampness will damage the heating equipment and other belongings stored in the basement. A thorough explanation will show that further damage could be stopped by installing a dehumidifier. Thus, preventive service offers an opportunity for the service department to realize a profit.

### **Form Lists Points to Check**

We start our preventive maintenance program during the latter part of April each year. Prior to this yearly inspection each customer's name and address is typed on a special inspection report form, along with a zone number. The form consists of the original and two copies. All three have a check list of more than 20 operations on the front side to be performed; at the bottom, space is provided for special instructions, additional work and materials and the customer's signature for accepting extras. A comprehensive form to record details of the burner, furnace and controls for the service department covers the back of the second copy.

### **All Parties Have Full Record**

When the inspections get under way all the report forms have been grouped by zone. The third copy is retained in the office to enable the dispatcher to locate any service man at any time. The other two copies are turned over to the service men.

Each service man receives about six jobs a day in the same zone, but does not always complete that number; generally it ranges between five and six, with as few as four on some occasions. Without zoning, which greatly cuts down on traveling time and expense, even fewer inspections would be completed.

When an inspection is completed, the original copy of the report form is



enclosed with the customer's statement. In this way, the customer has a complete picture of all the service rendered.

The second copy, with the installation record on the back, remains in the service department files where it serves several purposes. First, proof that an inspection took place comes in very handy when claims to the contrary are made by some customers.

### Stress Workers' Importance

In the second place, the installation record has proved invaluable in an emergency call for service.

The responsibility for making service men realize the importance of their work falls on the service manager. He should impress on them that preventive service plays a vital part in retaining and building the business. Without such understanding,

service men are in danger of becoming discouraged because of the repetition common to service work, particularly during an annual inspection. Or, perhaps, without it they would not see the point in making so many extra checks and taking additional precautions while on a trouble call. Without it, too, their approach and tact in dealing with customers might leave much to be desired and good customers could be lost.

## ARI Proposes Standards for Publishing AC Ratings

TO ESTABLISH standard methods of publishing ratings for residential air conditioners, the Air-Conditioning and Refrigeration Institute has prepared an ARI Interim Standard 620-56 for Published Ratings for Residential Air Conditioners.

This standard applies to residential air conditioners of the types defined as follows:

a) A self contained year 'round air conditioner is a factory made assembly of one or more condensing units or absorption refrigeration units, a heat-generating unit (such as a gas or oil fired furnace), and means for air-cooling, dehumidifying, heating, cleaning and circulating.

b) A residential self contained air conditioner is a factory made assembly of one or more condensing units or absorption refrigeration units and means for air cooling, dehumidifying, and circulating intended for residential use.

c) A refrigeration chassis for air conditioning is a factory made assembly of one or more condensing units or absorption refrigeration units and means for cooling and dehumidifying.

d) A remote condenser air conditioning unit (split system) is a factory made combination of basic refrigerant circuit components in which the condensing unit or condenser and the other components are intended to be connected in the field by means of refrigerant tubing; such units may or may not include means for evaporator air circulating.

This standard does not apply to room air conditioners or heat pumps.

### Rating Requirements Outlined

**Cooling Capacity Ratings:** Cooling capacity ratings shall be based on tests conducted in accordance with the ASRE methods of rating and testing air conditioners (The American Society of Refrigerating Engineers Standard 16-56). Published ratings shall include the total cooling capacity rating, stated in Btuh, at the ASRE standard rating conditions, at an evaporator air quantity of 33.3 cfm per thousand Btuh of rated cooling capacity or the maximum air quantity listed by the manufacturer,

whichever is less, and, for air cooled units, at the standard condenser air quantity specified and stated by the manufacturer. The ASRE standard rating conditions for cooling are:

a) For water cooled units: Inside air temperature, 80 F DB, 67 WB, condensing water temperature, 75 F entering, 95 F leaving.

b) For air cooled units: Inside air temperature, 80 F DB, 67 F WB; outside air temperature, 95 F DB and 75 F WB when condensate is rejected to the condenser air stream for evaporatively cooled units; inside air temperature, 80 F DB, 67 F WB; outside air temperature, 95 F DB, 75 F WB.

Cooling capacity ratings for remote condenser type air conditioning units may be on a close-coupled basis.

**Power Input Ratings:** Published ratings shall include the power input at rated voltage to the refrigeration compressor stated in watts or the energy input to the absorption units stated in Btuh, based on tests conducted in accordance with the procedures and conditions specified under Cooling Capacity Ratings.

**Tolerances:** To comply with this standard, published cooling capacity and power input ratings shall be based on data obtained in accordance with the provisions of this section and shall be such that the performance of any production unit will have a cooling capacity not more than 5 percent below and a power input not more than 5 percent above said ratings.

### Ratings Must Meet Requirements

**Conformance:** Conformance with this standard shall not be claimed or implied unless the published residential air conditioner ratings for which such claims are made meet all the conditions specified in these proposed standards.

It is recommended that ratings conforming with this standard be identified as follows:

"Rating(s) certified to comply with ARI Interim Standard 620-56."

[Copyright 1956 by Air-Conditioning and Refrigeration Institute and reproduced by permission]

# Comfort-Trained Builders Use Zone Control as Selling Tool



THIS SERIES of articles, under the general heading, " 'TRAINING PROGRAM' ... in Print," is designed to help dealers train their engineering, service, managerial and sales personnel in all phases of their operations. These articles are selected for their informative value and are presented as reference material for developing know-how among employees in situations which are likely to arise. Some of the previous articles in this series have discussed:

- electrical problems
- humidity control
- management techniques
- air distribution
- sales presentations
- school heating
- promotion ideas
- attic fans

Dealer-to-builder-to-prospect education program pays off in increased project sales for a dealer who proved his theory that new home prospects are very much interested in the benefits of heating and cooling



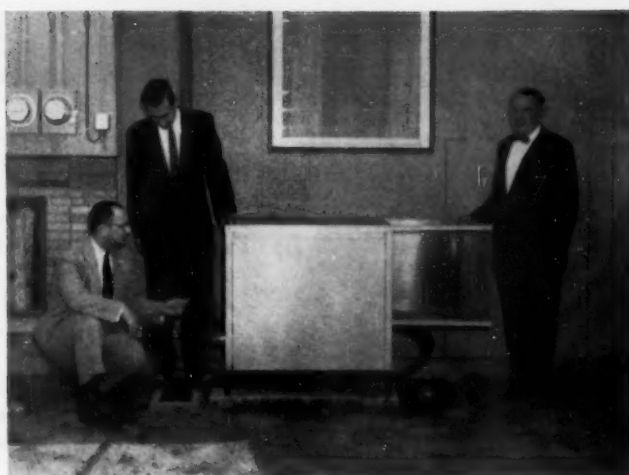
Manufacturer's representative explains to builder's salesman how the equipment functions so the ...



... builder's salesman can tell the story of year 'round comfort to prospective house buyers



**1** INVENTOR OF baseboard diffusers used in the homes, Paul E. Schleicher, describes how air pattern blankets doorway



**2** MANUFACTURER, BUILDER and installer go over the details of a remote air cooled condensing unit installation which will help sell homes



**3** ZONE CONTROL of air distribution is explained by Tom Moore (left), manufacturer's representative, to Paul Linder, builder's salesman



**4** INFORMATION LEARNED about dual control system from heating-cooling experts is passed on to home prospects in salesman's presentation

"I BELIEVE new home seekers are more interested than they are given credit for in the heating-cooling equipment installed in the model houses they visit," says Paul E. Schleicher, Gary, Ind. heating-cooling sheet metal contractor. Mr. Schleicher, member of Sheet Metal and Air Conditioning Contractors National Association and Lake County (Ind.) Sheet Metal Contractors Association, specializes in new house work, primarily in the \$18,000 to \$21,000 bracket, for South Gary Home Builders, Inc. He has designed and patented his own air distribution

system for heating slab floors with a record of customer satisfaction that he believes is comparable to any.

The company makes it a policy to work closely with the builder and his salesmen to point out to the prospective home buyer how the heating-cooling system works. Manufacturers' representatives are asked to aid in the instruction of the builders' salesmen to help them not only to explain how the equipment functions under changing outside temperatures but also to answer with authority any questions which might be asked by prospects. It's an appreciation of

the questions asked by the home prospects that prompted Mr. Schleicher to use this approach in helping the builder sell his houses.

#### Builder's Salesmen Trained

The mutual assistance training program works like this:

The company asks the builder's salesman to meet with a representative of the heating-cooling equipment manufacturer, the control manufacturer, or one of the other suppliers of heating-cooling equipment. The manufacturer's or supplier's repre-



sentative explains in detail the primary purpose of the equipment, points out its special features and answers all questions, then leaves literature for the salesman to review.

#### Prospects Like Zone Control

All of the 385 houses planned by the South Gary Home Builders, Inc. are to be year 'round air conditioned and will include zone control. Three types of houses: ranch style, multi-level, and two story, will be used in the project. Floor areas will vary from 1400 to 2200 sq ft depending upon the house design.

The builder's salesmen say the zone control system is one of the big talking points which hold prospect interest in the face of many other features that traditionally attract women prospects. The salesmen explain how the air is conditioned and moved through the air distribution system, where the zone control system takes over to direct the air volume where it is needed most. The salesman lists these pointers about zone control: it provides continuous air circulation, gives modulating air flow control and performs equally well with either heating or cooling.

#### Explain How Dampers Work

During the explanation that follows, the salesman will show the prospect the damper motor and its connecting linkage to the zone dampers. He explains that the dampers are so arranged that when one is fully

closed, the other is wide open and that any intermediate change in the position of one is reflected by a compensating change in the second damper, making it possible to modulate more or less air to the separate zones as needed.

The zone control system is explained in more detail when the prospects are shown the furnace and cooling equipment.

The use of two thermostats is explained — how one controls the damper motor to provide the required air volume to the zones while the second turns the fuel burner or cooling system on or off as needed.

The builder's salesman also explains the patented air distribution system and tells how it helps overcome the problem of cold floors erected over concrete slabs, such as in basementless ranch style houses and the recreation and utility rooms in multi-level houses.

#### Extended Plenums Used

This system is primarily an extended plenum arrangement with small 3 in. (inside diameter) asbestos-cement feeder ducts taking off from the plenum at intervals varying from 12 to 24 in. depending upon the heat loss of the room and the length of the exposed perimeter. There are two 12 in. galvanized steel extended plenums, one on each side of the heating-cooling equipment.

#### WHAT'S YOUR PROBLEM?

**The American Artisan's 'TRAINING PROGRAM' — IN PRINT will explain the whys and wherefores of some of the dealer's problems, tell what to do about them. You will want the members of your organization to study these articles carefully, keep them for future reference . . . If you have a problem you'd like to see covered, write Clyde M. Barnes, Editor, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.**

The feeder ducts terminate at the outer walls of the building into a standard takeoff boot which discharges into a specially designed baseboard diffuser. The boot is protected from excessive heat loss or gain through the slab edge by a 1 in. blanket of waterproof insulation that extends 24 in. back from the edge.

#### Diffuser Made for System

The baseboard diffuser, invented by Mr. Schleicher, runs the entire length of the exposed wall, broken only by door openings. It is made from two sections of streamlined molding with a 1 in. opening between sections. Air is directed out of the opening by an aluminum deflector set into the space behind the lower baseboard section.

The feeder ducts are set 2 in. below the top of the concrete to provide warm floors. Tests show that floor temperatures vary between 68 and 70 F. Salesmen point out that more than 3500 of these systems are installed in the Gary area.

Air cooled condensing units are used throughout the project. The operation of this equipment is also explained to prospects, who are told how air is utilized as a cooling medium and how mechanical noises are isolated from the living area.

#### Prospect's Role Outlined

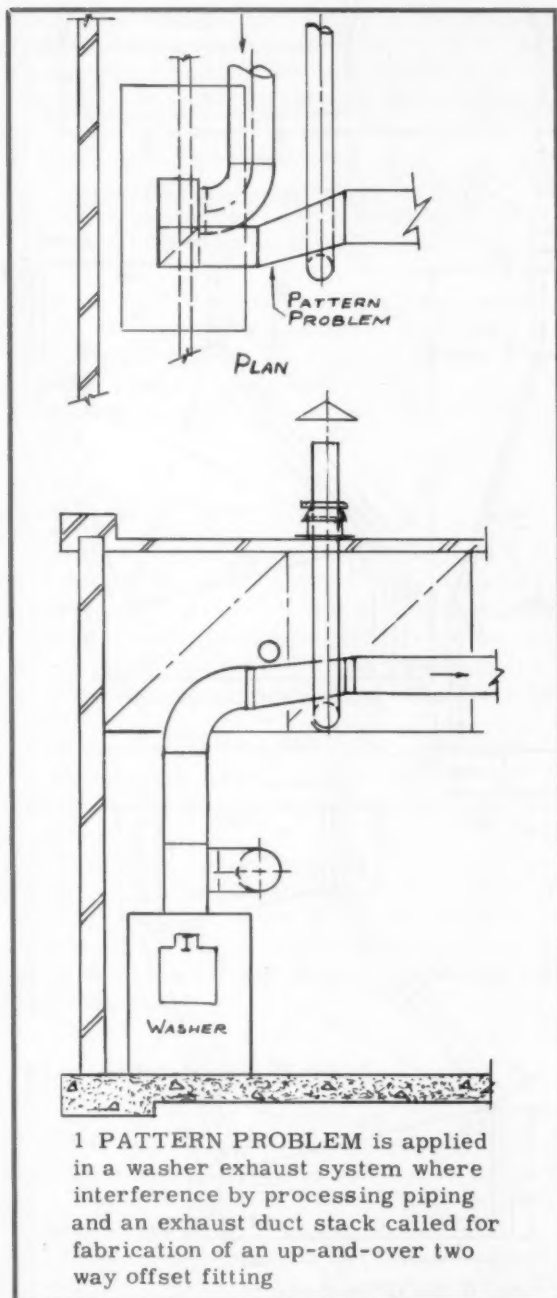
The salesman winds up his description of the heating and cooling equipment by pointing out the advantages of keeping doors and windows closed the year around as proved at the air conditioning research village in Austin, Tex. (reported in August, 1956 Artisan).

This sales approach not only makes the prospective home buyer more conscious of the heating-cooling system for his new home, it also tells him about the equipment, how it is expected to function and the comfort he can expect from it every day of the year. It also points out the care required in selection and maintenance of heating-cooling equipment to get the most out of it.



## Make an Up-and-Over Two Way Offset

... when interference is encountered  
in the path of the proposed duct system



OCCASIONALLY, INTERFERENCE is encountered in a proposed duct system which requires fabricating an offset fitting to clear the obstruction. Such a fitting is shown in Fig. 1 and described in this month's pattern problem.

In the development of the patterns by the simplified method for this type fitting, it is necessary to lay out the patterns for sides Y and Z (Fig. 3 and Fig. 4) first. By following this procedure, the true length lines A', B', C', D' will be produced for transfer to side W (Fig. 5) and side X (Fig. 6).

Given the front and end views of a double offset transition, the following is a step-by-step analysis of the pattern problem solution. Note that the patterns are developed from Fig. 2A.

### Front and End View Drawings, Figs. 2A and 2B—

a) Draw the  $1\frac{1}{2}$  in. horizontal line marked 5-1 (Fig. 2A). Bisect the line and draw the center line marked CL. From line CL measure to the right the given offset length which is  $\frac{3}{4}$  in., and draw a second center line above and parallel to the first. Mark this line CL also.

b) From line 5-1 measure up lines CL  $\frac{5}{8}$  in.,  $1\frac{1}{4}$  in. and  $\frac{5}{8}$  in., and establish the points F, G and H on the center lines as shown. Through point H draw a line perpendicular to and extending on both sides of point H. Measure  $\frac{1}{2}$  in. to the right and left of point H, and mark the points 8 and 4.

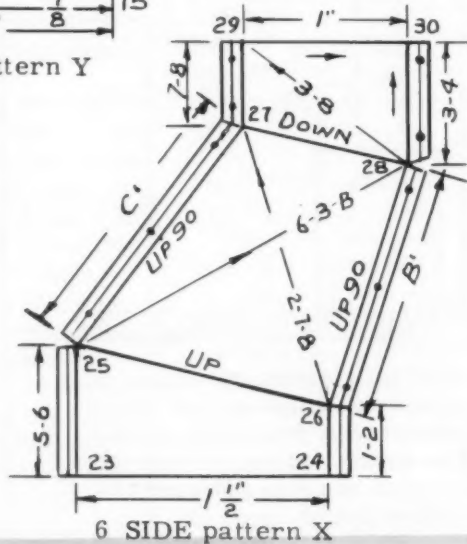
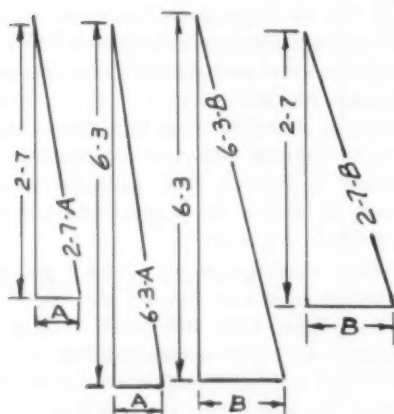
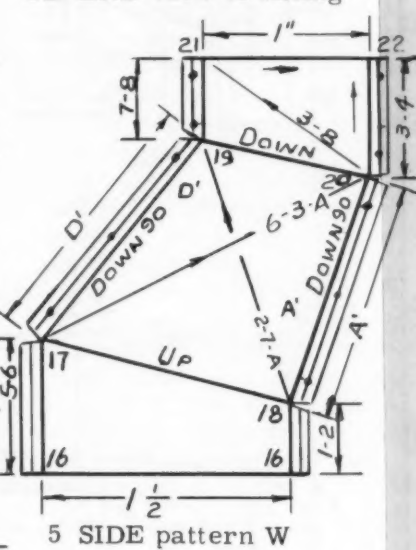
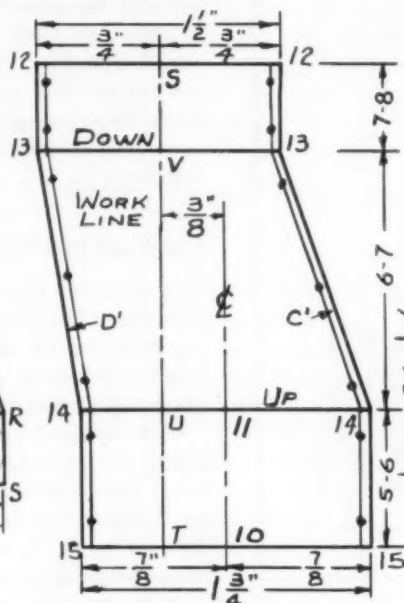
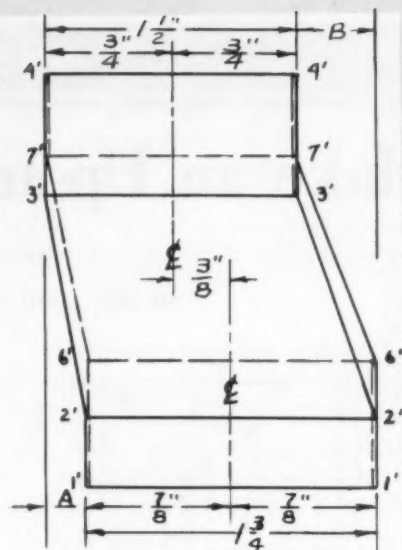
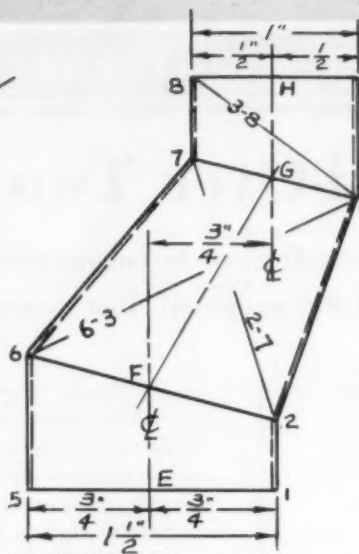
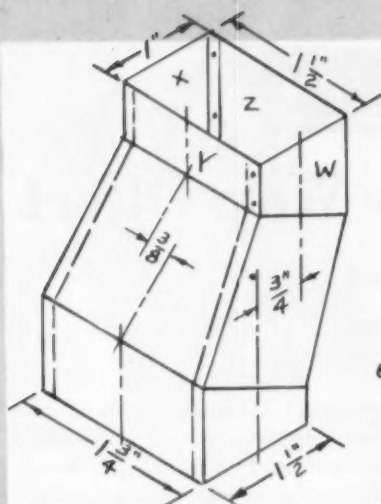
c) From points 1 and 5, draw lines upward and perpendicular to line 1-5. From point 1, measure up  $\frac{1}{2}$  in. and mark the point 2. From point 2, draw a line through point F to intersect the perpendicular line drawn from point 5 and mark this point 6.

d) From points 4 and 8, draw lines downward and perpendicular to line 4-8. From point 8, measure down  $\frac{1}{2}$  in. and mark the point 7. From point 7 draw a line through point G to intersect the perpendicular line drawn from point 4. Mark this point 3.

e) Draw lines connecting points 6 and 7 and points 2 and 3. Draw the work lines 2-7, 6-3 and 3-8.

f) Draw the  $1\frac{3}{4}$  in. horizontal line 1' 1' (Fig. 2B). From both points, draw lines perpendicular to line 1' 1'. From points 2 and 6 (Fig. 2A) project lines 2' 2' and 6' 6' parallel to line 1' 1'. Bisect the line 1' 1' and draw the vertical center line CL.

g) From the center line, measure to the left  $\frac{3}{8}$  in.



and draw a second vertical line. From point 4 (Fig. 2A) project a line to the right and parallel to line 1' 1' (Fig. 2B). Measure  $\frac{3}{4}$  in. to the right and left of the center line, and mark the points 4' 4'. From both points draw lines downward and perpendicular to line 4' 4'.

b) From points 7 and 3 (Fig. 2A) project the lines 7' 7' and 3' 3' to Fig. 2B. Draw two sets of lines labeled 3' 2' and 7' 6'. Mark the side offset lengths (Fig. 2B) as A and B.

### To Lay Out Side Pattern Z, Fig. 3—

a) Draw the vertical work line and establish point J at the bottom. From the front view (Fig. 2A) measure lengths 1-2, 2-3 and 3-4, and working from point J (Fig. 3) transfer these lengths to the work line and mark the points J, K, L, M, respectively. Through these points draw lines perpendicular to and extending on both sides of the work line.

b) From work line JM, measure  $\frac{3}{8}$  in. to the right and draw the center line CL. Mark the points N and O at the intersections of the horizontal lines and this center line.

c) From points M and L, measure  $\frac{3}{4}$  in. to the right and left, and mark the points P and Q. From points N and O, measure  $\frac{7}{8}$  in. to the right and left and mark the points R and S. Draw two sets of line PQ, QR and RS. Mark left line QR as line A' and right line QR as line B'.

### To Lay Out Side Pattern Y, Fig. 4—

a) Draw the work line and establish the point T at the bottom. From the front view drawing (Fig. 2A), measure lengths 5-6, 6-7, 7-8, and working from point T (Fig. 4) transfer these lengths to the work line and mark the points T, U, V and S. Through the points draw lines perpendicular to and extending on both sides of the work line.

b) From work line TS, measure  $\frac{3}{8}$  in. to the right and draw the center line marked CL. Mark points 10 and 11 at the intersection points of the horizontal lines and this center line.

c) From points V and S, measure  $\frac{3}{4}$  in. to the right and left, and establish points 12 and 13. From points 10 and 11, measure  $\frac{7}{8}$  in. to the right and left and establish points 14 and 15. Draw the two sets of lines 12-13, 13-14 and 14-15. Mark left line 13-14 as line D' and right line 13-14 as line C'.

### To Lay Out Side Pattern W, Fig. 5—

a) Draw the  $1\frac{1}{2}$  in. horizontal line marked 16-16. From both points 16 draw lines perpendicular to line 16-16. From the front view (Fig. 2A) transfer lines 5-6 and 1-2 to the corresponding lines on Fig. 5, and mark the points 17 and 18. Draw the line 17-18.

b) Draw a right angle. From Fig. 2A transfer length 2-7 to the vertical leg, and rise distance A from Fig. 2B

to the horizontal leg. The hypotenuse line 2-7-A is the developed line. With point 18 (Fig. 5) as center, and radius 2-7-A, draw an arc above and to the left of point 18. With a compass, measure line D' (Fig. 4) and with point 17 (Fig. 5) as center, cut the arc 2-7-A and mark the point 19.

c) On a right angle, transfer line 6-3 from Fig. 2A to the vertical leg, and rise distance A (Fig. 2B) to the horizontal leg. The hypotenuse 6-3-A is the developed line. With point 17 (Fig. 5) as center and radius 6-3-A, draw an arc above and to the right of point 17. With a compass, measure line A' (Fig. 3) and with point 18 (Fig. 5) as center, cut the arc 6-3-A and mark the point 20. Draw the line 19-20.

d) Set a compass at line length 3-8 (Fig. 2A) and with point 20 (Fig. 5) as center, draw an arc above and to the left of point 20. Measure line 7-8 (Fig. 2A) and with point 19 (Fig. 5) as center, cut the arc 3-8, and mark the point 21.

e) With a compass, measure line 3-4 (Fig. 2A) and with point 20 (Fig. 5) as center, draw an arc above point 20. With line length 8-4 (Fig. 2A) as radius, and point 21 (Fig. 5) as center, cut the arc 3-4 and mark the point 22. Draw the line 21-22.

### To Lay Out Side Pattern X, Fig. 6—

a) Draw the  $1\frac{1}{2}$  in. horizontal line 23-24. From both points, draw lines perpendicular to line 23-24. From the front view drawing (Fig. 2A) transfer lines 5-6 and 1-2 to the corresponding lines on Fig. 6, and mark the points 25 and 26, respectively. Draw a line connecting points 25 and 26.

b) Draw a right angle. From Fig. 2A, transfer line 2-7 to the vertical leg, and fall distance B to the horizontal leg. The hypotenuse line 2-7-B is the developed line. With point 26 (Fig. 6) as center, and radius 2-7-B, draw an arc above and to the left of point 26. With a compass, measure line C' (Fig. 4) and with point 25 (Fig. 6) as center, cut the arc 2-7-B and mark the point 27.

c) Transfer line 6-3 from Fig. 2A to the vertical leg of a right angle, and fall distance B from Fig. 2B to the horizontal leg. The hypotenuse line 6-3-B is the developed line. With point 25 (Fig. 6) as center and radius 6-3-B, draw an arc above and to the right of point 25. With a compass, measure line B' (Fig. 3) and with point 26 (Fig. 6) as center, cut the arc 6-3-B and mark the point 28.

d) Set a compass at line length 3-8 (Fig. 2A) and with point 28 (Fig. 6) as center, draw an arc above and to the left of point 28. Set a compass at line length 7-8 (Fig. 2A) and with point 27 (Fig. 6) as center, cut the arc 3-8 and mark the point 29.

e) Measure line 3-4 (Fig. 2A) and with point 28 (Fig. 6) as center, draw an arc above point 28. Set a compass at line length 8-4 (Fig. 2A) which is 1 in., and with point 29 (Fig. 6) as center, cut the arc 3-4, and mark the point 30.

Through the developed lines draw the pattern outline.

**MASTER JOB SHEET** is key to record system used by Lee Wagener Co. Sample figures, representing entries for a typical gutter and downspout job, tell complete story on job at a glance

# Fingertip Record System

## Turns Costs into Profits

**Keeping records for a heating-cooling-sheet metal business is complicated at best. When the system can be streamlined to the point where one clerk takes care of all the records formerly handled by three people for a half million dollar a year business, the formula is worth passing on. Here's how one growing concern did it . . .**

ABOUT A YEAR AGO, when business reached the point where his job record system became too bulky to handle efficiently, Lee Wagener, president of Lee Wagener Co., Peoria dealer-contractor, set about simplifying it. What he came up with was a job record system that not only saves time and money (one posting clerk now does the work formerly assigned to three office employees) but also places complete information on every job in process at his fingertips at a moment's notice.

"Our business," says Mr. Wagener, "is engineering and contracting. It is influenced by weather conditions and many other factors common to the construction business. We often have a large number of jobs in various stages of completion, some of one day's duration and others which will require a year to complete. Yet we must always be ready to do our part of each construction job and to work along with the other crafts at the proper time. For this reason, we must have an efficient system of records which provides complete information on all jobs in a hurry.

"Another of the basic problems involved in contracting is accurate computation of man-hours, materials and equipment involved in each job. Then there are our three indirect partners — the federal government, state government and the unions. We must keep records for all of them as well as for our own use.

"Our previous system served all these purposes for many years, but as business grew we found the administrative cost of maintaining these records was out of proportion. We decided to adopt a new system.

"To make sure the new system would fit our specific needs we worked closely with two specialists — one in record keeping and the other in preparation of the forms necessary for the records and in the method of filing them. The combined efforts of these experts in general procedures and our familiarity with our own particular problems has produced what we believe to be as near perfect a system as is possible to achieve."

The system has two parts: 1) a record keeping system which provides all the details of job operations for instant use, and 2) the commonly used double-entry book-keeping system, which in this case contains only brief summaries of the job operation and is relieved of cluttering details.

### **Master Job Record Is Nucleus of System**

Key of the new record keeping system is a master job record sheet for each job. These sheets are 8×11 in. light bristol board. The large size provides ample room for recording all labor, overhead, materials and equipment involved in the smallest or the largest job.



DATE	SHEET	METAL	DATE	DESCRIPTION	VENTS	REGISTERS	ROUGH IN	FURNACE FITTINGS	SUMMARY		
									ITEM	AMOUNT	TOTAL
									FREIGHT		
									DRAWAGE		
									PERMIT		
									OTHER CONTRACT		
									TOTAL		
									MATERIAL	x x x	54 64
									WATER	26 80	
									SERVICE		
									TOTAL COMP INS	1 61	28 41
									OVERHEAD	x x x	83 05
									10%		8 31
									TOTAL COSTS		91 36
									SALES	x x x	10 76
									12%		
									GRAND TOTAL		102 32
									PROFIT		22 68
									SELLING PRICE		125 00
									PARTIAL BILLING		

JOB NO. \_\_\_\_\_ DATE 10/13/56

Furnish and erect gutters and downspouts  
(see list of materials needed) Contract price \$125.00

ACCOUNT \_\_\_\_\_ ADDRESS \_\_\_\_\_ AT \_\_\_\_\_ LOT NO. \_\_\_\_\_ STREET \_\_\_\_\_

Furnish and erect gutters and downspouts  
(see list of materials needed)  
Contract price \$125.00

Mulhille, Ell.

John Smith

ADDRESS \_\_\_\_\_ AT \_\_\_\_\_ LOT NO \_\_\_\_\_ STREET \_\_\_\_\_

ON AN

The front of the job record sheet (see reproduction on page 67) is ruled into material, equipment and cost summary columns and spaces for recording information on the type of job and the account. Expenses are broken down into five groups: 1) direct expenses, including freight, drayage, permit and other contract costs; 2) material costs, based on actual cost of materials rather than on retail costs; 3) labor; 4) overhead; 5) sales expenses.

### **Flexible Costs Entered as Percentages**

The latter three groups are made up of related expenses which are known (by experience) to constitute a certain percentage of the category in which they fall, and are so listed.

For example, while wages constitute most of the labor expenses, employee insurance, welfare funds, service department costs, and other related items are also charged to labor. These miscellaneous expenses are known to amount to about six percent of the amount spent for wages (\$26.80 on the record sheet shown). This percentage (\$1.61) is added to the wages paid, for a total labor outlay of \$28.41.

Similarly, overhead is known to be about 10 percent of the combined material and labor expense, or \$8.31. Rent, electricity, heat, general insurance, administrative payroll, office expense, owner's salary, taxes, travel expense and other items constitute overhead.

Sales expenses, made up of salaries, commissions and bonuses paid to sales engineers, again is known to be about 12 percent of the sum of all other expenses, or \$10.96, establishing the grand total of expenses at \$102.32.

### **Net Profit Shown at a Glance**

Subtracting the total expenses from the contract price establishes the net profit for the job at \$22.68. Figures used on the sample job record do not represent an actual job by the Wagener company but are representative of the type of records kept.

The reverse side of the master job record sheet is devoted entirely to labor computation columns with space provided for the journeyman's name, time breakdown and wage rate. The name and number of the account is entered at the top of the page.

### **Daily Records Transferred to Master Sheet**

While the master job sheet is the key to the job record system, entries come from several sources.

One of these sources is a daybook in which the sales engineers enter all the orders they have sold, listing all pertinent information. The orders are listed and numbered consecutively so they can be handled in sequence. The posting clerk makes a master job sheet for each order entered in the daybook and files it alphabetically in a cabinet. A hinge arrangement in the drawers makes both sides of each card accessible for making entries.

Labor cost entries come from the shop. Each mechanic has two cards which he fills out each day. The first is a personal work record which shows his name, date, names of the accounts, the time spent on each job and the type of work done. The second record is an 8½ × 11 in. card for each job on which the mechanic works. The same general information is listed on this card as on the first, plus a listing of the various items of material and equipment used.

Each morning the mechanic gives all his cards for the previous day to the posting clerk who records the cost of materials on the job card and then enters both the wages and material costs on the master job sheet.

When a job is completed the sales engineer who was responsible for it advises the posting clerk, who completes the summary on the master job sheet.

### **Payroll Procedures Simplified**

The company also developed a simplified method of handling the weekly payroll and writing pay checks. A record sheet is kept for each employee, on which salary and all deductions are entered for each payroll. On a separate payroll sheet the clerk lists all employees, salary due, total deductions and net pay. A carbon copy of the information listed on the payroll sheet appears on the employee's check. The object of the check writing system is to maintain complete information for each employee on one sheet, which simplifies the recording of withholding tax deductions.

When the weekly payroll is made up and the totals have been computed, only the totals of the summary are given to the bookkeeper for the general record.

### **Other Devices Save Time**

Apart from the bookkeeping system but contributing to the total efficiency of the new system are two time-saving devices developed within the company to overcome the problems which accompany expansion. One is a board in the shop on which work orders are hung individually and in sight at all times so mechanics can locate them quickly to make entries of material withdrawn. The board saves precious minutes formerly spent leafing through a stack of work orders to make an entry.

The other is an inventory board where an up-to-date record of parts and equipment is maintained. Different colored shipping tags representing various types of equipment and listing the number and type of each piece are attached to the pegboard. As parts are used or received they are deleted or entered on the appropriate tag. The revised cards are passed on to the posting clerk who notes the changes and replaces the tag.

There's no question about the success of the system. Replacement of three office employees by one posting clerk is only one of the effects. Equally as important is the saving of many minutes daily by each employee by placing all the information needed for any operation within immediate reach.



## Canned Presentation Sells 'Em ... And Keeps 'Em Sold



**Who to see, what to say and how to say it — three elements of the second art of salesmanship — must be determined long before the first contact is made. Briefly, it amounts to making a canned presentation, as dramatically as possible, to both husband and wife. But the details are very important . . .**

**By Ray F. Horan**

**Merchandising Manager  
General Controls Co.**

LAST MONTH we discussed the first step in the overall sales picture — prospecting for leads. We presented some tested techniques and emphasized the importance of the informal visit with the prospect to establish a relaxed and friendly atmosphere before getting down to business.

Having reached that point, the salesman is ready for the second step in the sales formula — that of presenting the product. Here are a few ideas I've picked up, again addressed to the dealer's salesmen.

For example, you phone a prospect you've met but don't know intimately.

You say, "Mr. Jackson, I heard about your plans for a new building and I'd like to come out and tell you what we can do for you on material or equipment." He says he is pretty busy. So you wait and call him back a week later. Same thing. Then you find out from the barber he always gets his hair cut Wednesday just after

lunch. So you appear at the barber shop Wednesday after lunch. Obviously, now, after all that trouble, you have to have something worthwhile to say to him. Something besides what he's heard before, that you sell the best equipment in the world and have a good price.

### **Got a Canned Sales Story?**

There is only one sales story that's worth anything and that is the canned sales story. If a salesman hasn't got one, he'd better get busy and make one. No, you won't sound like a parrot. You can't make a presentation and tell a story with any emotion unless it is a canned story. You must know what is going to come out of your mouth next. Can the story yourself, but make it good. When you go out as a salesman, imagine yourself an actor. You have to dramatize the words you are going to



TO FIND OUT where he must start in his sales presentation, the salesman calls first on the lady of the house. She may have an oriental rug on her mind, but with the proper sales technique . . .



SHE'LL START THINKING about heating or cooling, as long as she isn't being pushed. She'll probably even help accumulate the information needed for preparing an estimate for a new system "next year"

tell your prospect. Imagine an actor thinking up his lines as he goes along! First, the actor must learn his lines and then he has time to establish the idea he wants to put over. He has time to think about dramatizing the words he uses because he doesn't have to waste time thinking up the right words.

Everyone is inclined to think there is a little of the author in him. I suggest you take time to write the story about the thing you have to sell, as you see it.

### Make It a Game

To be a power in your business, you don't have to be big or good looking. You don't have to be a genius. You just have to have the right words. Make a game of it. Some bad weekend try your hand at being an author. Tell the family to take a ride, that you are going to do some serious work. Go into the back bedroom and lock the door. Take your pencil and say, "I am now in the presence of Mr. and Mrs. Jones in their home and I am going to sell them a new heating system. I am going to put my best statements on paper." And you just write it down. It has to be conversation. Start out with the first words you are going to say when you get to the presentation — not the greeting and perfunctory remarks you make when you first come in. First, you have to get Mrs. Jones into the conversation, but you see that she is out in the kitchen washing dishes. Mr. Jones says, "What are you going to charge me for this?" You don't dare give him a price just yet — first you have to get Mrs. Jones in on the presentation. You know she has a little influence in the family — in fact, quite a lot of influence. This girl (as all of them do) has a lot of plans she doesn't tell her spouse about. He thinks he is going to buy a new heating plant but he hasn't sold her on it yet,

so he is kidding himself. So you have to get this important person in on the act. If you can't sell her on the idea of sitting down and listening to your story, you might as well get up and go home.

### He's Sold — But Wait!

How many times have you talked to a man in his office and when you got through he said, "That's wonderful — a nice presentation, as nice as I ever heard. I think you sold me something." You feel pretty good and begin to write the order. But hold on. He'll probably say, "I've been thinking about it for a long time. I like your story. I like the sound of your equipment. You represent a good house." But — "Give me two or three days to think it over." What has this prospect got to think over? Nothing. He has to go home and ask the lady of the house if it's all right to buy a new heating plant. He comes into the house feeling good. A man always feels good when he has made a decision. He says to his wife, "I think I bought you a new heating plant today." And waits for a response.

He doesn't get any. So he waits until he hears her in the kitchen and says it again. The wife appears in the door with a pot in one hand and dish rag in the other. "Heating plant! John, I don't know what is the matter with you. I sometimes think you are totally without a brain. Don't you know Lillian has to have her teeth fixed before she goes back to school and George has to have a complete new wardrobe and our insurance is due October 15? Where do you think you are going to get the money for a heating plant?" He'll say, "Skip it. Forget I said anything about it." She talks two minutes. He has those expenses in mind and he thought the budget would take care of them but this female in two minutes has talked him into a state of bankruptcy. He doesn't know



what happened to his budget. The only thing she didn't tell him is that she has been figuring on a \$1000 oriental rug and is waiting for the psychological moment to drag it into the house. So they sit down and eat dinner without a word of conversation.

Friday morning you, Mr. Salesman, show up at the office to get your order.

### Enter The Old Stall

He tries to get out of seeing you but he finally puts on his best smile and comes out and says, "I'm sorry about this. I've been so busy in the office and we have a bunch of friends in from out of town" — two standard excuses — "and I haven't had a chance to give this thing any thought." He isn't going to tell you his wife won't let him buy it and he rushes you out. You come back in another week and he brushes you off again. And so it goes until you are at each other's throats. You've murdered a sale.

All you did was get him in a fight with his wife and if he doesn't like you for it, you can't blame him.

Unless a man is making \$20,000 a year, you don't dare waste time with him in his office if you are going to sell him something for his home. You have to get out to the house. The best trick is to meet the wife first if you can. You know the husband won't be home so you drive out and visit with the lady of the house.

### Wife Will Tell You Where You Stand

Tell her what you want to see him about and you'll find out in advance whether or not it will do you any good to see him. If she says she will have no new heating system this year, you can see where your selling job starts and it might take six months to find that out from the man of the house. You visit with her and get her to relax. Say, "If you don't want a new heating system this year, I'm sure you aren't going to have one. But you are going to have one sometime." "Yes, but not this year." "That's all right Mrs. Brown. Our company has been in business for many years and we will be just as happy with a new customer next year. I heard your husband was interested in a heating system and happened to be out this way and thought I'd drop in. Now that I'm here I'd like to look over the property to get an idea about requirements and go back to the office and figure what it would cost. Then I'd like to prepare a little proposal to send out to you so you will know what it will cost next year. If you say you are going to have a new heating system you will want to know what it will cost." She doesn't know you are going to bring it out personally when her husband is there. She figures you are a nice man because you aren't going to upset her program by taking her money this year. But when you show up one evening the following week you say, "I have the figures I promised on the new heating system and I'd like to tell you a little something about heating systems."

You say, "Mrs. Brown, will you be kind enough to

## FIVE KEYS TO SALES SUCCESS . . .

. . . are described in this new series, "The Fine Art of Selling," by Ray F. Horan. These subjects, covered in five separate articles, run the gamut of selling and its related activities, as follows:

- 1 PROSPECTING — how to start the sale
- 2 PRESENTING — creating a desire
- 3 CLOSING — how to get the order
- 4 OVERHEAD — making every sale count
- 5 COLLECTIONS — how to clear accounts

sit over on that side of the table and Mr. Brown, you sit here. I'm going to take you to school. I have some pictures to show you." You are moving into your presentation.

### Tell The Heating Story

For a heating system, it might start something like this: "Now folks, before any man can buy a heating system intelligently he ought to know something about what the system is supposed to do. This may seem a little academic, but I'm sure you'll find it interesting." And you go into your canned story — what the heating plant does, how it accomplishes its objectives, etc. — and you tell an educational story to these people. When you have finished they will love you. When the next guy tries to upset your apple cart, he can't do it unless he has a better story because you have made a contribution to these people's minds. You have given them something. When you get through the fellow says, "That's wonderful. I know more about a heating plant than I ever dreamed before and I appreciate it."

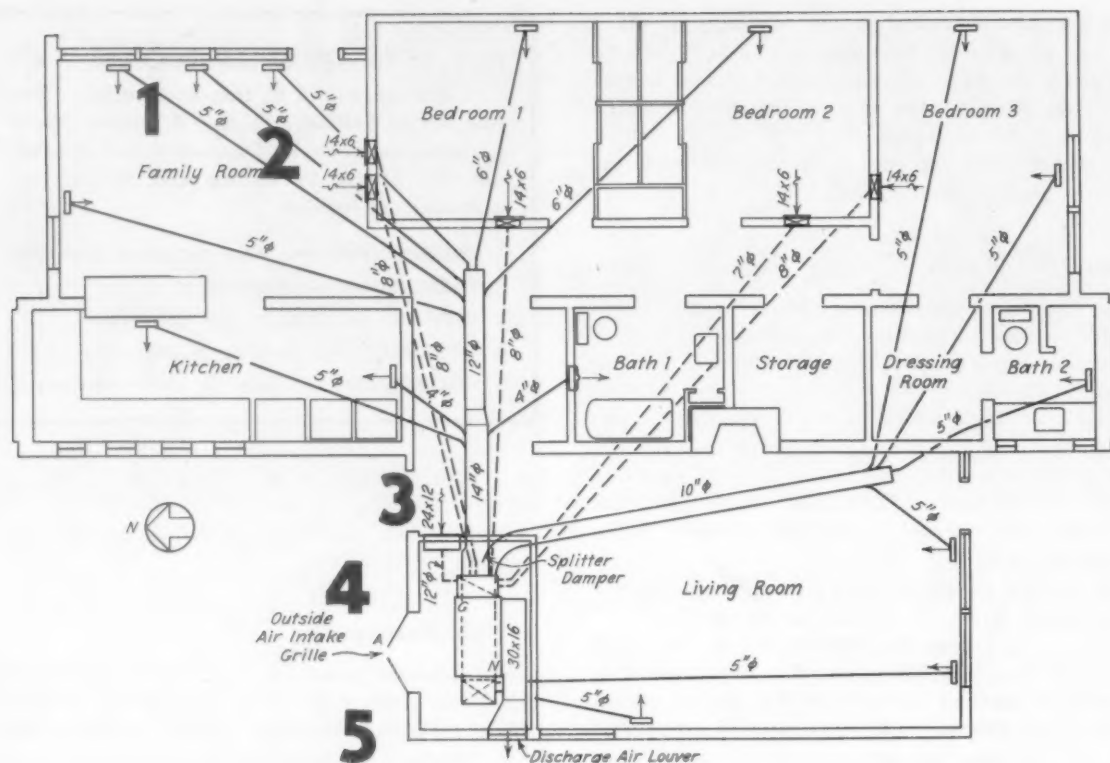
### Presentation Gains Momentum

Then your sales story goes down the line. You show them half a dozen things it is supposed to do; show them how the one you want to sell them conforms to these requirements. Now you have done something — you have convinced these people beyond a question of a doubt that you are the smartest heating man they ever met. It has only taken about 30 minutes and they are with you. Now you can close.

How? Well they will tell you what a wonderful sales presentation you have made. Says he, "I feel more relaxed about it. This was a mystery to me before but now I understand it and I know what I'm going to buy. I want to thank you. I'm going to do business with you."

But then he goes on, "However, I don't think we will go ahead with the project this year."

And with this statement by the prospect, we enter into the subject of closing, which will be treated in detail next month.



## Heat Pump Makes This Home

# 'An Island of Comfort'

... the year around by  
automatically providing or removing heat as required  
when outside temperatures vary

THE WEATHER may rage outside the home described herein during the summer or winter but the owners don't worry — they live in *homemade* comfort. Or it may be said they live in an automatically controlled climate, with the aid of equipment installed by residential air conditioning dealer James W. Hoynes of Savannah Fuel and Supply Co, Savannah, Ga. The equipment is a heat pump that keeps indoor temperature and humidity "just right" according to the home owner, regardless of whether it is cold, hot, humid or windy on the outside.

According to Mr. Hoynes, the first step in a heat pump installation is designing the air distribution system. He says, "You've got to deliver the right quantity of air at the right temperature and you must provide free access for the air to return to the conditioning equipment."

### Perimeter Diffusers Spotted at Exposure Points

After figuring the building's heat loss and heat gain room by room, he selects his register locations so adequate



**1** RECREATION ROOM has two large glass doors opening directly onto a patio. To offset the exposure at this point, three floor diffusers are placed beneath the glass

air will be delivered to the points of greatest exposure. Supply diffusers are located along the perimeter of the building and near large glass areas (see floor plan). Although the floor plan does not show windows in the east walls of the bedrooms, there are 12 in. strips of glass running high along each wall and jalousie type windows in each room.

The return air system is given as much consideration as is the supply air distribution. It is imperative that sufficient volume of air be returned to the conditioner for reconditioning. Mr. Hoynes believes in separate return ducts from each room that has a large heat loss or gain or in bedrooms or others where a closed door might upset the volume of air being returned.

### Two Return Grilles Reduce Noise

To reduce air movement noise caused by high velocities, Mr. Hoynes frequently installs two return air grilles in rooms where large volumes of air are handled. He also uses central return systems but usually in conjunction with a return duct system. The central return grilles are located near the equipment and sized to accept the volume of air being supplied to all rooms that do not have their own return opening. The capacity of the return must equal or exceed the air volume being delivered by the supply system.

The supply duct system used in this home is imbedded in a concrete slab. Each duct was placed in a trough and covered with 1 in. of insulating cement before the slab was poured. The return duct system uses the attic space and is covered with 1½ in. rock wool insulating blanket.

To reduce equipment noise transmission each duct system is separated from the heat pump package by fire resistant insulating canvas connections. To reduce noise transmission further, each intake duct is internally lined with 1 in. thick sound insulating material for a distance of 18 in. A third measure used to assure noise-free operation is placing vibration isolating supports beneath each corner of the heat pump package.



**2** TO ASSURE ADEQUATE return air, dual grilles and duct system are used where large air volumes are supplied to offset effect of large glass areas

### Equipment Room Has Outside Louvers

The equipment is located in a room with plenty of space for adequate servicing. The serviceman will not need to enter the house as the equipment room has its own door opening on the porch. A grille has been placed above the equipment room door to admit outside air for heat in the winter or to remove heat from the condenser in summer. The used air is then discharged through a louvered opening in one side of the house. It is customary to landscape the part of the house where this opening occurs. However, care must be taken that the discharge opening is not restricted in any way.

The electrical supply recommended for a 39,000 Btu heat pump is a 220-v three phase circuit, independent of other electrical circuits for the house. (There are single phase models to serve areas where three phase



**3** CENTRAL RETURN is used for living room, hall and dressing room. All other rooms have their own return systems



**4** EQUIPMENT ROOM provides adequate space for heat pump installation and servicing. The opening will be closed by a matching paneled door. The air supply for the heat pump will be taken into a grille directly above the door



**5** DISCHARGE OUTLET for the heat pump is through a louvered opening at the side of the house. Landscaping will shield the opening from the front of the building without interfering with air discharge

electrical power is not available. Preference for three phase circuits is based on motor characteristics and not performance data, as each model of the same kind of unit, whether single or three phase, will deliver the same capacity.)

#### Year 'Round Comfort for 55c A Day

The operating cost of heat pumps varies with the locality, but many power companies have shown increased interest in this year 'round consumer of electrical energy. Special tests have been conducted in many parts of the country. The Georgia Power Co. has made an intensive

investigation into operating costs. The special power rate given a year 'round consumer of electrical power brings operating costs down. Findings show that within the state of Georgia, annual consumption in kilowatt hours for a 5 hp air-to-air heat pump will be between 11,000 and 16,000 kwh. The power rate for this annual consumption figure is about 1.6 cents per kwh. This indicates an annual power bill of about \$250 for the 16,000 kwh unit. Many 5 hp heat pumps have operated for less than \$200 for one year. This represents year 'round comfort for about 55 cents a day. These figures are the result of numerous tests made, many of them dating from as early as January 1953.

## How Do You Rate as a Business Manager?

DEALERS AND contractors who observe 50 percent of the following ten tips qualify as good business managers, according to the Minneapolis Sheet Metal & Roofing Employers Association:

1) Read at least an hour a day — newspapers, trade and business magazines or books on phases of management.

2) Study your customers — each is an individual; no two are alike. Get their reactions to your advertising and operational methods. Find out what they like and don't like about your business.

3) Resolve to be more courteous to customers and prospects — you can't go overboard on this, and it pays off in response.

4) Observe employees at work — try to reduce the number of time-

consuming steps each man takes and reduce the number of possible irritations and dangers each man encounters. Try to accomplish the entire operation with the least expenditure of time and energy.

5) Study the locality, neighbors and your relationship to them — help people and they will help you.

6) Make at least one procedural change — keep up with the advances in the world around you. If you can't find anything to change, you're not keeping up with advances in management techniques.

7) Study yourself — occasional self-examination will expose little undesirable habits in time to correct them.

8) Plan company social functions — promote team spirit by getting employees together socially.

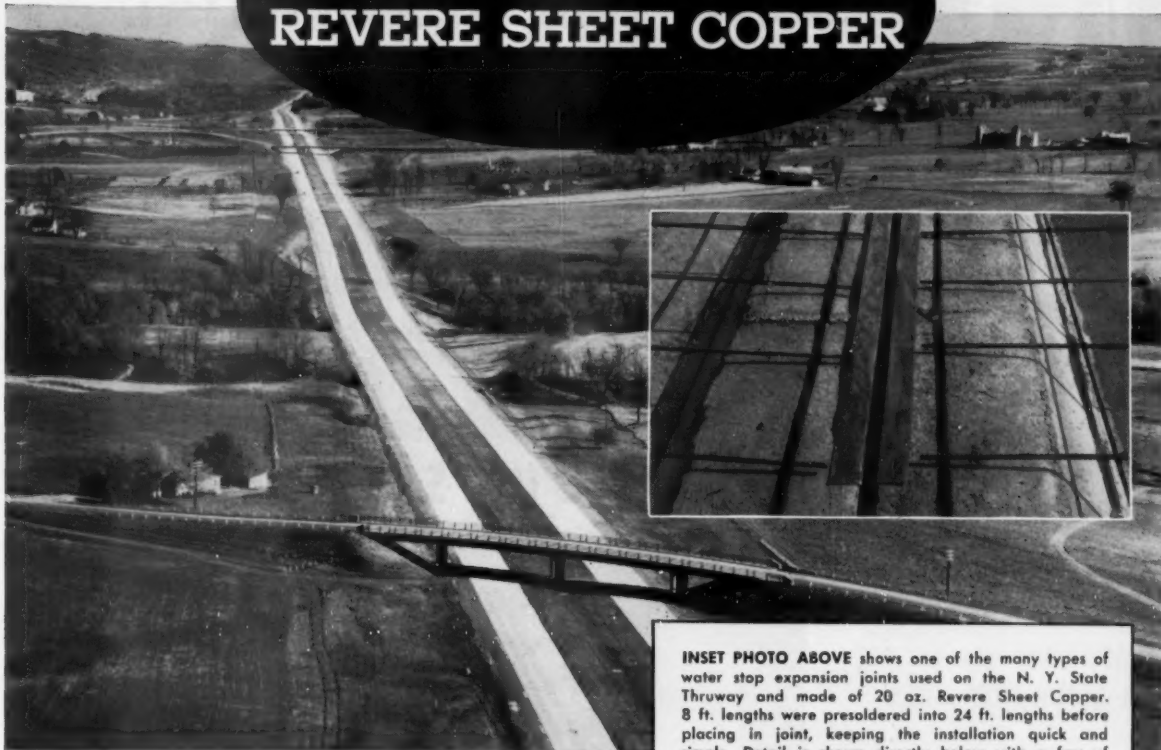
9) Plan a physical change in your business — take a good look at your shop, showroom, office, etc., with a view to making whatever changes you can afford.

10) Smile more times today than you did yesterday — your customers have troubles, too. They're hoping you'll solve their problems.

Obviously, the list emphasizes the importance of self-evaluation, keeping up with the changing times and good public relations — three phases of modern management which have been proved vitally important to any type of business. Recent strides in the field of business management make it virtually impossible for dealers to realize the full potential of their operations without keeping abreast of developments which their competitors are employing.



# what they're doing with REVERE SHEET COPPER



## Water stop expansion joints on many bridges of N. Y. STATE THRUWAY are made of 20 OZ. REVERE SHEET COPPER

Ordinarily, when you drive over a bridge you don't think of expansion joints. But their function is as important as the concrete reinforcing rods or other members from which bridges are constructed. That's why copper was selected. It does not rust, rot or deteriorate, concrete does not bother it. Copper readily expands and contracts with temperature changes. It flexes to take every movement of the concrete slabs and the stress and strains year after year without breaking down, is readily worked into any desired shape and a cinch to join by soldering or brazing. Construction engineers and sheet metal men tell us, in a spec. there is no "or equal" for copper.

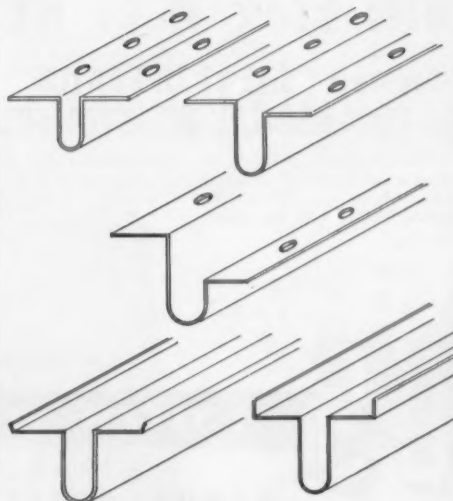
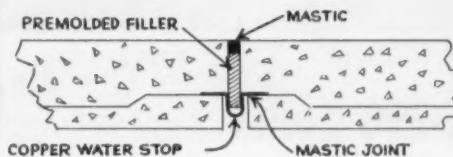
### REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801  
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y. Sales Offices in Principal Cities, Distributors Everywhere.



INSET PHOTO ABOVE shows one of the many types of water stop expansion joints used on the N. Y. State Thruway and made of 20 oz. Revere Sheet Copper. 8 ft. lengths were presoldered into 24 ft. lengths before placing in joint, keeping the installation quick and simple. Detail is shown directly below with a few of the many types of joints used.



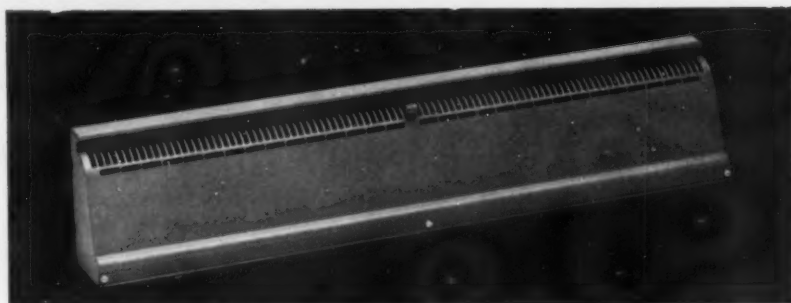


# TWO GREAT LINES

## Solve Your RESIDENTIAL and COMMERCIAL NEEDS

### The MOST POWERFUL and BEAUTIFUL BASE DIFFUSER for RESIDENTIAL USE

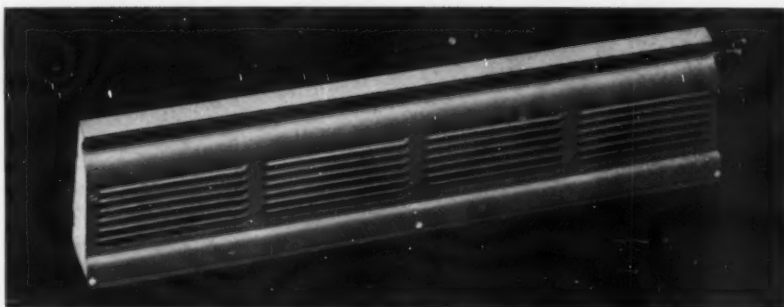
Get EFFICIENT, SATISFACTORY PERFORMANCE on every job with this PROVEN LEADER. EASIEST to Install, LEAST RESISTANCE of all. Its QUIET, SATISFYING Operation will build your reputation for quality PERIMETER AIR CONDITIONING SYSTEMS. Made in two-foot and four foot lengths.



### The No. 1000 U.S. Super-Base DIFFUSER

### and it's MATCHED COMPANION—the INTAKE with MORE FREE AREA

A Harmonious Blend with the No. 1000 — the COMPLETELY NEW No. 2000 Intake. INVERTED LANCED OPENINGS create NON-VISION, EASY PAINTING, EASY CLEANING. It pleases the eye and gives SUPERIOR PERFORMANCE. Made in two-foot and four foot lengths.



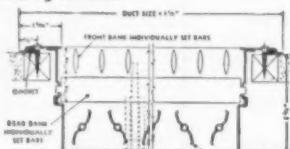
### The No. 2000 U.S. Perimeter INTAKE

## No. 190 Series Multi-Flex A.C. REGISTER and GRILLES

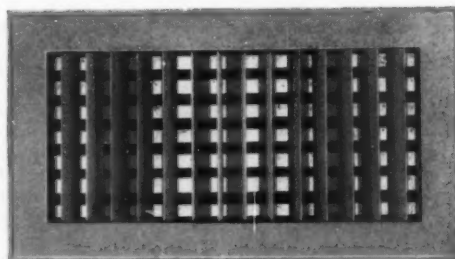
### The Greatest "SILENT OPERATOR" in the COMMERCIAL REGISTER FIELD

Sleek, STREAMLINED BARS eliminate disquieting sounds of all other style bars. Affords the FINEST DIRECTIONAL FLOW with the LEAST

RESISTANCE for Better Air-Conditioning Results.



WRITE FOR CATALOG 55-6



**UNITED STATES REGISTER COMPANY**

BATTLE CREEK, MICHIGAN

MINNEAPOLIS • KANSAS CITY • ALBANY

SOLD BY LEADING JOBBERS FROM COAST TO COAST

**• IT'S HIT THE  
MARKET!**



**"CLIX-ON"**

*Patent Pending*

**TOP OR SIDE  
ADJUSTABLE  
TAKEOFF**

**HOLD YOUR BREATH!**

**TURN THE PAGE...**

**Chicago  
3 Air Cond**  
During the  
Chicago, Ill. ne  
air conditioners  
weeks to readers  
answers to this qu  
You Think Owners Sa  
Unit Installed Outside  
and Eliminated Interior  
ating Sound



Used as  
**TOP**  
takeoff



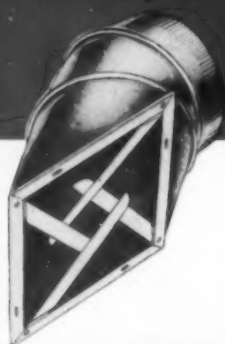
Used as  
**SIDE**  
takeoff

# "CLIX-ON"

*Patent Pending*

## UNIVERSAL ADJUSTABLE TOP OR SIDE TAKE OFF ROUND COLLAR SIZES 5"-6"-7"

By  
**STANDARD  
OF OMAHA**



**A BEAUTY? YOU BET!**

...and so simple to install!  
Just flip the "CLIX-ON" arms  
in place..and it's on, to stay!

CLIP AND MAIL COUPON TODAY, telling us  
the name of your regular supplier. We will  
mail you complete information about  
"CLIX-ON" adjustable side or top takeoffs!

ONCE TRIED--ALWAYS USED!

### HERE ARE THE ADVANTAGES!

- ▶ Tremendous time savings in installations!
- ▶ Easiest installed of any takeoff!
- ▶ One fitting for top or side use (reduced inventories)!
- ▶ Fully adjustable...finger-tip control!
- ▶ May be installed on plenums or closed duct, from the outside!
- ▶ Eliminates notching, bending, hammering!
- ▶ Permanent when locked...Won't pull off!
- ▶ Greatest air-flow efficiency rating, by actual test!
- ▶ Streamlined...Modern...Eye-appealing!
- ▶ Air-tight corner and seam construction!

Standard Furnace Supply Co., Ltd.  
714 South 72nd St.  
Omaha, Nebraska

NOTE: Please give complete  
information requested

**HURRY! Send me complete information about  
"CLIX-ON" TAKEOFFS today!**

☐ Dealer ☐ Jobber

Name of my pipe & fittings supplier: \_\_\_\_\_

His location is: (Street No.) \_\_\_\_\_

(City) \_\_\_\_\_ (State) \_\_\_\_\_

FIRM NAME \_\_\_\_\_

INDIVIDUAL \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

CITY & STATE \_\_\_\_\_



Manufactured by

**STANDARD**  
FURNACE SUPPLY CO., LTD.

714 So. 72nd St. Omaha, Nebraska

**CONTACT YOUR  
JOBBER TODAY!**



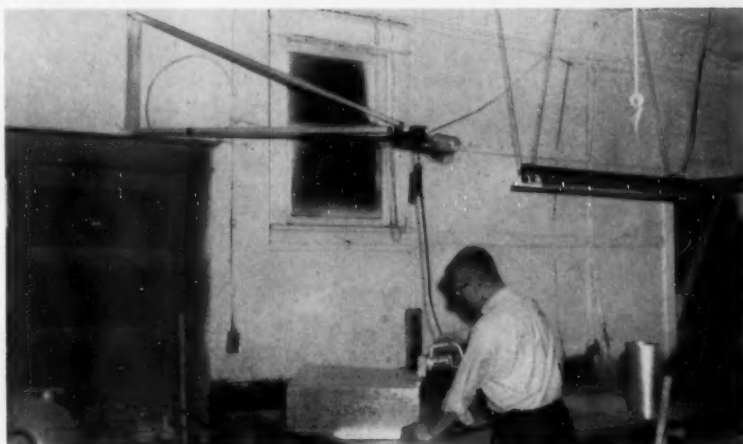


## Idea Exchange for Dealers, Contractors

### Pivoted Tool Support Streamlines Shop Work

"THERE MUST BE a little of the inventor in each of us," said Jim Daily, Daily Heating Co., Hammond, Ind., as he demonstrated a pivoted overhead support for small tools used in the company's sheet metal shop. The tool rack, developed by the company's sheet metal mechanics, supports a portable electric nibbler.

The pivoted tool support is made of 18 ga galvanized iron formed in the shape of a channel. The channel is 2½ in. wide with 1 in. lips. The pivoted tool channel swings out on a 5 ft horizontal arm which is supported by a diagonal brace also made from the same type channel. Both pieces are fastened to a 2 ft vertical wall bracket with pivot pins.



FABRICATION OF hand trimmed duct sections is speeded by use of overhead pivoted support for small tools. Jim Daily demonstrates tool developed to save shop time at Daily Heating Co.

#### Rack Serves Two Benches

This arrangement makes it possible for the tool rack to have a 10 ft swing. It can be used at the ends of either of two work benches that are separated by other tools. In the case of the Daily shop, the work benches have a lock former and small welder between them, but when a mechanic working on either bench needs the portable nibbler hanging on the pivoted rack, he swings it over to his working area.

#### Lamp Reduces Shadows

To avoid the problem of working in shadows cast by the workmen, a

shielded lamp is connected to the end of the pivoted arm. This places light directly on the fitting being fabricated.

The portable nibbler is hung on a hook about 7 ft above the floor when not in use. Power for the light and the nibbler comes from a cord

attached to the pivot arm and connected to a nearby power source.

#### Tool Saves Steps

There is another advantage to such a tool: It eliminates the time and trouble of going after or returning the nibbler to the stock room. It also prevents the cluttering of the work bench and the possibility of the tool being knocked to the floor when not being used.

This same arrangement could be adapted to other hand tools, such as electric drills, electric and pneumatic seaming hammers, soldering irons, torches and riveters.

#### Tell Others About Your Successful Ideas

by writing to:  
Editor, American Artisan,  
6 N. Michigan Ave.,  
Chicago 2, Illinois.

# Honeywell offers you line of bi-metal

Creatively styled, precision



**L498 C & D  
Combination Controls**

Actuated by a flat spiral bimetal element protruding only 1½ inches—these new combination controls are ideally suited to applications where space does not allow an element of conventional length. The D model has a manual fan switch.



**L477A Cutout Switch**

A manually reset safety control device that provides positive fan shutoff when air temperature becomes critical. It is often used to prevent possibility of reverse circulation in counter-flow furnaces.



**LA412 Furnacestat\***

Prevents fan operation until required bonnet temperature has been reached. A summer setting provides for continuous fan operation.



**LA419 Airstat\***

The Airstat is used as a high-limit control for warm air furnaces. Nonadjustable differential standard, adjustable differential optional.



**LA445A  
Combination Limit and  
Two-Speed Fan Control**

A Combination Limit and Two-Speed Fan Control to control two-speed fan motors. The fan starts on low speed when the bonnet temperature rises to the indicator setting and switches to high speed when the high-speed setting is reached.

*For complete information on the  
Honeywell line of Fan-Limit Controls,  
write Honeywell, Dept. AA-11-276,  
Minneapolis 8, Minnesota.*

*\*Trademark*

# the most complete fan-limit controls!

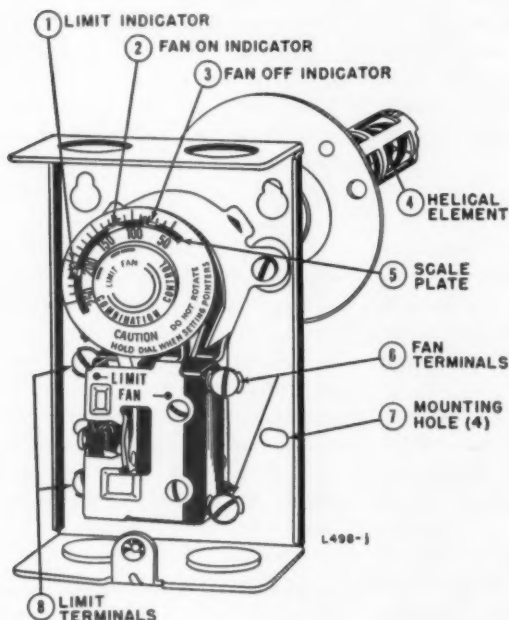
designed, ruggedly built!

**N**OW HONEYWELL has everything you need in high-quality fan-limit controls. The line looks good, is easy to install, functions with precision and gives the dependable kind of service that means fewer trouble calls.

And only the Honeywell Fan-Limit Control line offers you these advantages:

(1) Works for *all* voltages. High-quality electrical contact structure gives sure performance at any voltage. (2) Lets you standardize on a single line. (3) Simplifies your stocking problems. (4) Allows you to mix line- and low-voltage controls. (5) Rugged construction incorporates the finest materials and workmanship. (6) Very latest styling. Wrap around one-screw cover. (7) More models, more lengths and more combinations to meet your specific control needs—than any other manufacturer makes. Everything from controls for the simplest gravity system to the most modern forced-air system.

So remember, for precise, trouble-free operation—there is no substitute for quality. That's why in Fan-Limit Controls—there is no substitute for Honeywell.



## L498A and B Combination Controls

Designed for application with all types of forced warm air furnaces, they close the fan circuit and open the limit control circuit on temperature rise. They close limit circuit and open fan circuit on temperature drop. May be used on line or low voltage circuits and are applicable to Powerpile systems. The B model is equipped with a manual fan switch.

MINNEAPOLIS  
**Honeywell**



*First in Controls*

112 OFFICES ACROSS THE NATION

# Honeywell offers you line of bi-metal

Creatively styled, precision



**L498 C & D  
Combination Controls**

Actuated by a flat spiral bimetal element protruding only 1½ inches—these new combination controls are ideally suited to applications where space does not allow an element of conventional length. The D model has a manual fan switch.



**L477A Cutout Switch**

A manually reset safety control device that provides positive fan shutoff when air temperature becomes critical. It is often used to prevent possibility of reverse circulation in counter-flow furnaces.



**LA412 Furnacestat\***

Prevents fan operation until required bonnet temperature has been reached. A summer setting provides for continuous fan operation.



**LA419 Airstat\***

The Airstat is used as a high-limit control for warm air furnaces. Nonadjustable differential standard, adjustable differential optional.



**LA445A  
Combination Limit and  
Two-Speed Fan Control**

A Combination Limit and Two-Speed Fan Control to control two-speed fan motors. The fan starts on low speed when the bonnet temperature rises to the indicator setting and switches to high speed when the high-speed setting is reached.

*For complete information on the  
Honeywell line of Fan-Limit Controls,  
write Honeywell, Dept. AA-11-276,  
Minneapolis 8, Minnesota.*

\*Trademark



# the most complete fan-limit controls!

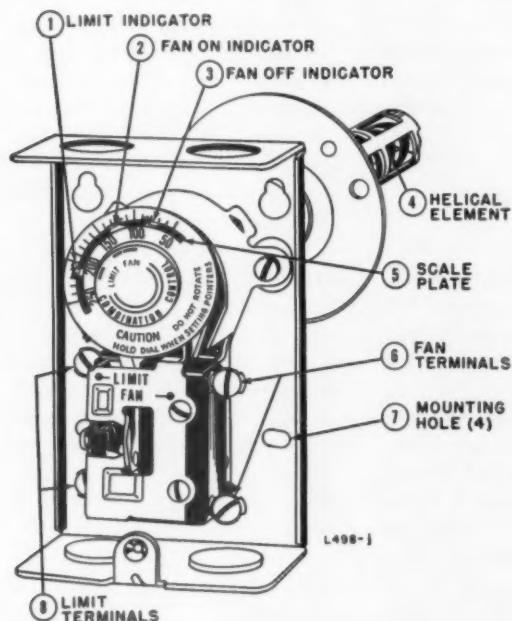
designed, ruggedly built!

NOW HONEYWELL has everything you need in high-quality fan-limit controls. The line looks good, is easy to install, functions with precision and gives the dependable kind of service that means fewer trouble calls.

And only the Honeywell Fan-Limit Control line offers you these advantages:

(1) Works for *all* voltages. High-quality electrical contact structure gives sure performance at any voltage. (2) Lets you standardize on a single line. (3) Simplifies your stocking problems. (4) Allows you to mix line- and low-voltage controls. (5) Rugged construction incorporates the finest materials and workmanship. (6) Very latest styling. Wrap around one-screw cover. (7) More models, more lengths and more combinations to meet your specific control needs—than any other manufacturer makes. Everything from controls for the simplest gravity system to the most modern forced-air system.

So remember, for precise, trouble-free operation—there is no substitute for quality. That's why in Fan-Limit Controls—there is no substitute for Honeywell.



## L498A and B Combination Controls

Designed for application with all types of forced warm air furnaces, they close the fan circuit and open the limit control circuit on temperature rise. They close limit circuit and open fan circuit on temperature drop. May be used on line or low voltage circuits and are applicable to Powerpile systems. The B model is equipped with a manual fan switch.

MINNEAPOLIS  
**Honeywell**



*First in Controls*

112 OFFICES ACROSS THE NATION

# 'Going-Coming' Rule Affects Compensation Claims

**Injuries suffered by employees on their way to and from work are not ordinarily the responsibility of the employer, according to court findings. Exceptions occur, however, under clearly defined circumstances**

COMPENSATION CLAIMS by employees for injuries under state Workmen's Compensation Acts must have two features in order to justify an award. It must appear that the injury on which the claim is based: 1) arose out of the employment, and 2) arose in the course of the employment. The validity of such claims frequently becomes indistinct when the accident occurs in going to or coming from work.

Recently in one of the midwestern states a truck driver had finished his deliveries and returned his truck to the garage, where he picked up his own car. On his way home he stopped at several drinking places and that evening, still on his way home, he was killed when his car collided with another.

His widow, in a claim for compensation, contended that his death occurred in the course of his employment under the "going and coming" rule.

### Delays Cost Eligibility

Refusing an award on the ground that the workman's delays had deprived him of the benefits of this rule, the court said:

"The courts have quite generally adopted the so-called 'going and coming rule'; that the hazards encountered by the employee in going to or returning from work are not ordinarily incident to his employment within the meaning of the phrase as used in the Workmen's Compensation Act.

"The additional hazards encountered while going to or returning from a place of work may be just as great when the place of beginning and ending the day's work is fixed and constant as when it is different each day; or whether the work be on a route or at a certain fixed place.

### Rule Based on Contract

"Nor is the going and coming rule dependent on the extent of the hazards of travel. It is based rather on contract, express or implied. If the employer assumed the burden of the workman's coming and going expense, that is held to imply that the time of coming and going is a part of the time of employment. Or when the employer sends him on a special mission apart from his usual employment, the coming and going time of such mission is implied to be within the course of employment."

### Employee Killed on Call

In another case, after an employee had returned home at the end of the work day his employer sent for him to assist in an emergency. On his way he was struck by an automobile and died of the injuries.

Sustaining the award of compensation in this instance the court said:

"It is a well settled and general rule that an injury suffered by an employee in going to or returning from the employer's premises where the work of his employment is carried on, except in special instances,

does not arise out of his employment as to entitle him to compensation."

However, under the circumstances the court added, "An exception to the aforesaid general rule is found in cases where it is shown that the employee, although not at his regular place of employment, even before or after customary working hours, a) is doing, b) is on his way home after performing, or c) is on the way from his home to perform some special service or errand or the discharge of some duty incidental to the nature of his employment in the interest of or under the direction of his employer.

"In such cases an injury arising enroute from the home to the place where the work is to be performed or from the place of performance of the work to the home is considered as arising out of and in the course of the employment."

### Court Demands Consistency

In a recent decision in which an award was denied, the court said:

"The compensation law is for the benefit of workers and is to be administered to that end. It must be administered by the application of logical and consistent rules or formulas notwithstanding its beneficent purpose.

"The compensation statute is not a charity. It is a humanitarian law to be administered not by sympathy but by logical rules. Compensation is to be paid by the employer as a matter of contract, not as a gratuity. It is payable only when the facts show that the injury is within the contract — that it 'arose out of and in the course of the contracted employment.'"

*[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states]*

any shape...any size...  
any kind of ductwork  
is better with  
galvanized steel...  
is best with

**WEIRKOTE**

In manufacturing ductwork, galvanized steel has long been relied on for ease and economy of fabrication . . . also providing maintenance-free long life.

But now, ever more fabricators are turning to Weirkote to do the job. Why? . . . Because Weirkote is the superior galvanized steel sheet, produced by the most modern continuous galvanizing process . . . quality-controlled from start to finish. It has the tightest of tight zinc coatings . . . resists cracking, peeling, flaking and, above all, corrosion as does no other metal for ductwork of proved durability. Weirkote is far stronger, more rigid, more heat-resistant. These are only a few of the reasons why we say: In the long run, galvanized steel . . . in the LONGER run, WEIRKOTE. Let Weirton show you why!

**WEIRTON STEEL COMPANY**

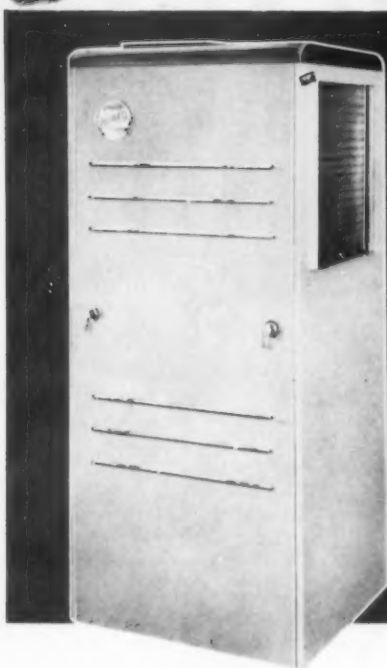
WEIRTON, WEST VIRGINIA

a division of

**NATIONAL STEEL CORPORATION**



**WE'D GET ALONG!**



# PEERLESS and you!


FOR MORE THAN 55 YEARS, THE  
FINEST NAME IN HEATING AND  
AIR CONDITIONING... **PEERLESS!**

Peerless' finest salesmen are Peerless customers! This is the kind of satisfaction that makes your name synonymous with the greatest in heating and air conditioning equipment . . . Peerless.

Whatever the fuel to be used, whatever the type of installation required, Peerless has a unit especially built for that need.

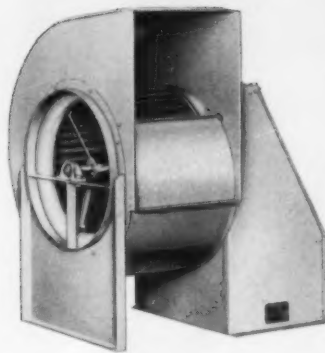
There's an air conditioner for every heating unit that can be applied with the original installation or added later.



*And, now the clima*  *pump...*

The new Peerless Air Source Heat Pump. No flue, no dust, no flame! Only air and electricity for this great new advance in heating and air conditioning—a single unit that becomes either a heating unit or an air conditioner with the flick of a switch.





**DOWN  
TO**



**ON A BUY IN THE SKY**

Let's face it: isn't it time something was done about "the forgotten fan?" Tucked away on the roof — but not out of harm's way — it takes a grueling beating from wind and the weather. If maintenance isn't up to snuff, it frequently breaks down from exposure and lubrication neglect.

Utility has the practical, down to earth solution: a complete series of Enclosed Drive Blowers designed for outdoor service, all with completely enclosed motors and drive to protect them against dirt, moisture and drastic temperature changes. Lubricated for life with permanently sealed, pre-greased ball bearings, they'll never break down from lack of proper maintenance.

This achievement in creative engineering is one more excellent reason to recommend Utility Enclosed Drive Blowers to meet every specification, be in line on every bid. Next job, plan with Utility to keep costs down while delivering the absolute maximum of outdoor service!

**UTILITY FAN CORP.** 911 East 59th Street, Los Angeles 1, California



*Manufacturers of heavy and standard duty blowers for heating, air conditioning and ventilating installations. Producers of blowers and blower parts for original equipment manufacturers. Write for catalogue data.*

*A Division of Utility Appliance Corp.*

See your



AMERICAN-Standard distributor! ..

-----  
AIR CONDITIONING DIVISION



..... He's the man with the complete

# DEALER PROFIT PROGRAM

No half-way measures . . . no half-way profits when you join up with your distributor of American-Standard Air Conditioning Division products. You'll find that he's a *specialist* in warm air heating, summer cooling and year 'round air conditioning . . . with a complete, top quality product line plus full technical and pro-

motional service. He has *everything* you need to build your reputation as a specialist . . . to sell constructively . . . to sell in volume. Contact him for the Complete Dealer Plan—he's listed in your classified telephone directory under "Furnaces" and "Air Conditioning Equipment". Or, if more convenient, just mail the coupon.

## *Complete product lines*

**HEATING.** Gas-fired and oil-fired winter air conditioners in basement, utility, counterflow and horizontal models . . . all sizes. Also coal-fired winter air conditioners and gravity furnaces, oil burners and gas burners.

**COOLING AND YEAR 'ROUND.** American-Standard is now the largest residential line on the market! Full range of water-cooled add-on and package models; 2, 3 and 5 hp air-cooled outdoor condensing units plus vertical, counterflow and horizontal air-flow and blower-equipped evaporators. Large selection of heating-cooling combination units equipped for gas or oil firing with water-cooled or air-cooled summer air conditioning.

## *Complete technical assistance*

**TRAINING CENTER** at American-Standard Air Conditioning Division factory, Elyria, Ohio, provides intensive courses, both elementary and advanced, covering all phases of heating and cooling layout, installation and servicing. **"HOW-TO" MANUALS.** Complete, concise technical data are provided in easy-reference form; also, detailed installation and application manuals on each and every model.

**FIELD SPECIALISTS.** You work closely with your distributor's technical specialists who, in turn, are backed by American-Standard field and factory engineers. This means that you can approach even the most difficult equipment applications with confidence and authority.

## *Complete promotion*

**DEALER IDENTIFICATION.** "Authorized Dealer" Certificate, indoor and outdoor illuminated signs, window banners and many other impressive identification items are included.

**NEWSPAPER AD MATS.** Wide variety of heating, cooling and year 'round pre-tested ads and product cuts.

**SALES LITERATURE.** Dozens and dozens of colorful pieces to help you promote and sell effectively.

**RADIO AND TV.** One-minute spot announcements and recorded singing commercials for radio; one minute filmed commercials for TV.

**COOPERATIVE AD PLAN**—the industry's most liberal cost-sharing promotional program.

# AMERICAN-Standard

AIR CONDITIONING DIVISION



American-Standard Air Conditioning Division (Dep't A-11)  
40 West 40th Street, New York 17, N. Y.

Please have your nearest distributor present The Complete Dealer Plan.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

# WHAT THE ASSOCIATIONS ARE DOING



VISITORS FROM CHICAGO who came to get a firsthand report on the effectiveness of the WHAM program are welcomed by Milwaukee association president Del Ihde (left) and Robert S. Schmieder (right). Ted Criel and Robert P. Johnsen (center) represented the Chicago Alliance



EXAMINING the 10th ad in the 13 insertion program are Richard Munkwitz of the Milwaukee Journal (left) and William Droegkamp, WHAM chairman

## Milwaukee Reports WHAM Program Big Success

**Review of association sponsored advertising program conducted during first eight months of the year results in unanimous approval for continuing the plan**

AFTER A THIRTEEN INSERTION WHAM program, the Sheet Metal Contractors Association of Milwaukee met September 26 to evaluate its effect. (WHAM is the symbol representing a program of advertising recommended by the National Warm Air Heating and Air Conditioning Association. The symbol WHAM stands for Warm air Heating and Air conditioning Modernization.) The program which was conducted by the Milwaukee group on a biweekly schedule was started last January. The ad insertions were placed in one newspaper in the building news section.

The ad was page size and was divided into two general sections — editorial material at the top to attract readers and at the bottom a list of the dealers cooperating in the WHAM program. Wholesalers and manufacturers lending their support to the program were listed at the lower right hand side of the page.

In reviewing the program, executive secretary Robert S. Schmieder said that the program had not been designed to get orders but had been directed to the con-

sumer that the public might know what performance could be expected from a good heating system. He summed up the objectives of the program into this motto: "to tell, not to sell".

Continuing his report, Mr. Schmieder said he had the feeling that the program had helped the entire warm air industry in Milwaukee because it had forced dealers, both those who participated in the WHAM program and those who were not members of the association, to become better salesmen. He based his comment on the necessity to answer questions asked by prospects who had read the editorial material published in the ads.

### Ads to Prepare Way for Certified Heating

The editorial content of each ad was changed and slanted toward seasonal or specific events. The cost of each ad was \$20.00 to each participant for each insertion. The actual costs varied from \$19.63 to \$20.47, de-

*(Continued on page 92)*



# America's outstanding homes are air conditioned by Carrier



Patio of model home in Sexton Woods, Atlanta, Georgia. Builder: Boyd-Jackson Corporation. Architect Henry D. Norris made impressive capital of the Carrier air conditioning in these \$17,000 and up homes.

Who installs the Weathermaker\* air conditioning in these outstanding homes? Carrier dealers. The men who know air conditioning best.

Carrier dealers are the best trained, the best informed and the best regarded craftsmen in the business.

That's why architects, builders and homeowners depend on them for air conditioning equipment that is installed competently, reliably. Carrier gives its dealers equipment that is designed with the accumulated experience of a half-century in the air conditioning business.

Would you like to enjoy the prestige and prosperity that comes to Carrier dealers? Get in touch with your nearby Carrier distributor or with Carrier Corporation, Syracuse, New York.

\*Reg. U.S. Pat. Off.

**MORE NEW HOMES ARE AIR CONDITIONED BY CARRIER  
WEATHERMAKERS THAN BY ANY OTHER MAKE**



Weathermaker Control Console regulates both winter heating and summer cooling.



Sexton Woods Homes use a perimeter discharge of cooled air. Inset above is the Carrier Year Round Weathermaker.



# JONES & LAUGHLIN INTRODUCES

# JALZINC\*

JALZINC is Jones & Laughlin's new trade name for its *high quality* zinc coated steel sheet and coiled product. JALZINC answers your toughest forming, rolling and drawing problems.

Produced by the proven Sendzimir process, JALZINC has a tight, uniform coating that resists cracking and flaking. The high lustre finish greatly improves the appearance of your end product. JALZINC is available in a wide range of gages and widths in both cut lengths and coils.

Users are enthusiastic about JALZINC'S uniform ductility, flatness and surface finish. Write today for complete details.

Jones & Laughlin Steel Corporation  
Dept. 512, 3 Gateway Center  
Pittsburgh 30, Pa.

- ☐ Please send literature on JALZINC  
☐ Please have J&L representative call

Name \_\_\_\_\_

Position \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_

State \_\_\_\_\_

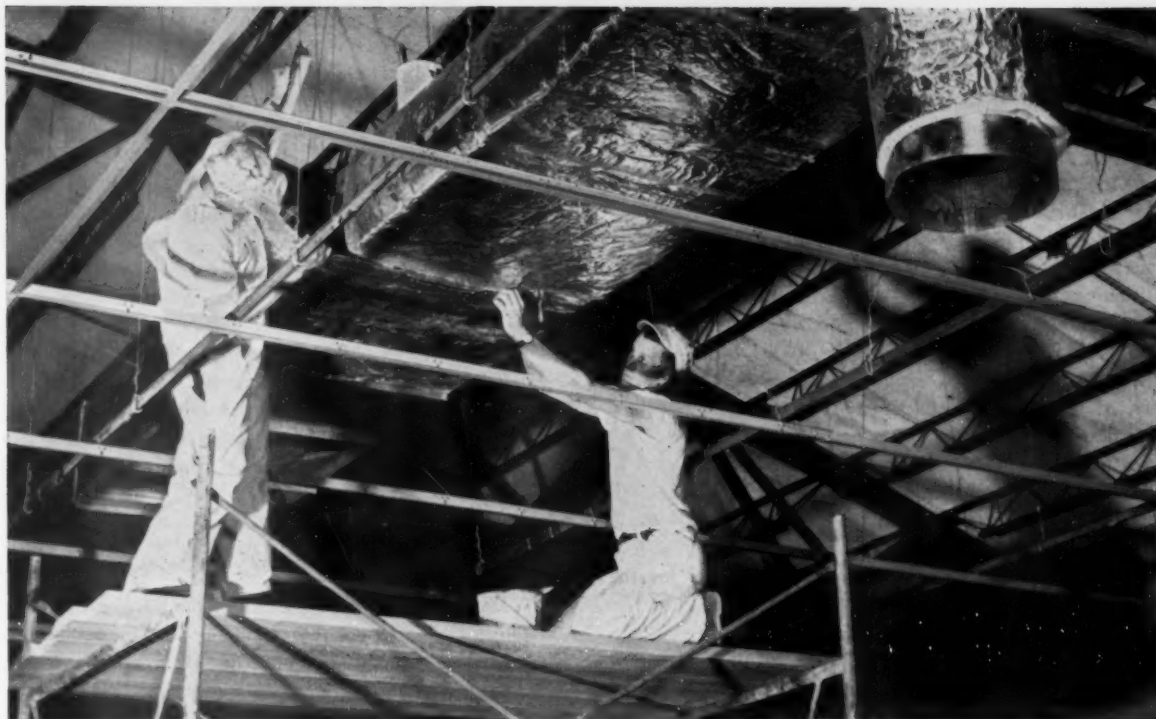
\*Registration applied for.

J&L inspector examines a roll of 18 gage JALZINC as it is coiled on a reel of the new Sendzimir continuous line.



## Jones & Laughlin

STEEL CORPORATION • PITTSBURGH



## "Foil-faced Microlite cuts installation costs ... boosts insulating efficiency"

—says John Hayes, Service Products, Inc., Toledo, Ohio.

Service Products, Inc., used foil-faced Microlite to prevent condensation on sheet metal air-conditioning ducts in Toledo's University Bowling Alleys. Working on scaffolds, the men brushed adhesive on ducts where edges of insulation butted together, and sealed the handy attached 2" tabs with adhesive... all more quickly than is possible with other blanket-type insulating materials!

Look at all the dollar-saving advantages you get from Microlite...

- *Easy to handle on scaffolds*—extremely light in weight!
- *Easy to cut and fabricate*—eliminates the need for precision cutting and fitting and for special skills and tools!
- *Resists tearing*—high tensile strength allows workmen to pull it through tight spots safely!
- *Economical to store*—compression-packed rolls take up a fraction of the space of ordinary insulations.

Microlite is one of the most effective insulations known. It is made from countless fine glass fibers which form millions of sound- and heat-trapping air cells. What's more, these glass fibers won't rot or burn!

Microlite is available with foil, vinyl and other plain or reflective facings, extended beyond edges of insulation to form tabs. For full details, check the Yellow Pages for the nearest distributor; or write: L·O·F Glass Fibers Company, Dept 45-116, 1810 Madison Avenue, Toledo 1, Ohio.



### L·O·F GLASS FIBERS COMPANY

TOLEDO 1, OHIO

Makers of glass fibers by the "Electronic-Extrusion" process

# WITH THE ASSOCIATIONS

(Continued from page 88)

pending upon the costs involved in preparing the advertisement. At the end of the 13 insertion program, the reserve amounted to \$1.27 each to the participants. This sum will go into the financing of the new WHAM program which will not have a time limit on it. It is expected that the editorial material will be slanted toward preparing the homeowners of Milwaukee for a Certified Warm Air Heating-Cooling Program.

In building public confidence in the editorial content of the ads, the National Warm Air Heating and Air Conditioning Association was used as the authority for the recommendations. Each ad carried a small reference to the background of NWAHACA, showing how long the association has been involved in research at the University of Illinois. Results of tests conducted were described and it was explained how they had been responsible for the publishing of a series of manuals that are used to engineer and install heating and cooling systems that will give comfort the public had never imagined was available.

The continuance of this approach is planned for the introduction of the certified heating-cooling system. The editorial program will offer a guaranteed heating system, backed by a certificate that is issued by the Milwaukee association only after a trained inspector has examined the system and found that it meets the standards set up by the 75 member association. A copy of the standards to be used will be given each purchaser and a record of the inspector's findings will be left after the inspection has been completed.

## Non-Members Invited into Association

Dealers who are not members of the association will not be allowed to participate in the certified program. The public will be warned that non-members of the association may try to capitalize on the certified program but that qualified inspections will be performed only by men hired for that purpose and who will not have any financial interest in the installation. Non-member dealers who wish to become part of the WHAM and certified programs will be invited to qualify for membership in the association.

Each dealer, wholesaler and manufacturer's representative attending the meeting was invited to express his opinion of the effectiveness of the 13 insertion WHAM program. Without exception, each indicated that the program had more than met the objectives outlined at the beginning of the program. Some of the comments summarize the attitude of those who supported the program:

DEALER: "We have a consumer health and welfare program underway that is being accepted in the manner we had hoped it would. It will be to our industry's advantage to continue this service indefinitely."

WHOLESALE: "WHAM has made it possible for the

public to buy a heating system more intelligently today than at any time in the past."

MANUFACTURER: "Salesmen are now in a better position to hammer home the essential good points of a heating system to the project builder."

DEALER: "I sold seven jobs from the first WHAM ad. I failed to keep track of calls after that; I felt that if the first ad pulled that well, my cost was well worthwhile."

WHOLESALE: "The interest the program has created at the consumer level was indicated to us by numerous inquiries we received from homeowners during the Milwaukee Home Show."

MANUFACTURER: "Ultimately heating systems must be installed that will meet minimum standards far above those acceptable today. This will come about through either legislation or industry supervision. WHAM has shown that association sponsored programs can do this job best."

## Solve Competitive Problems with Sales Ability

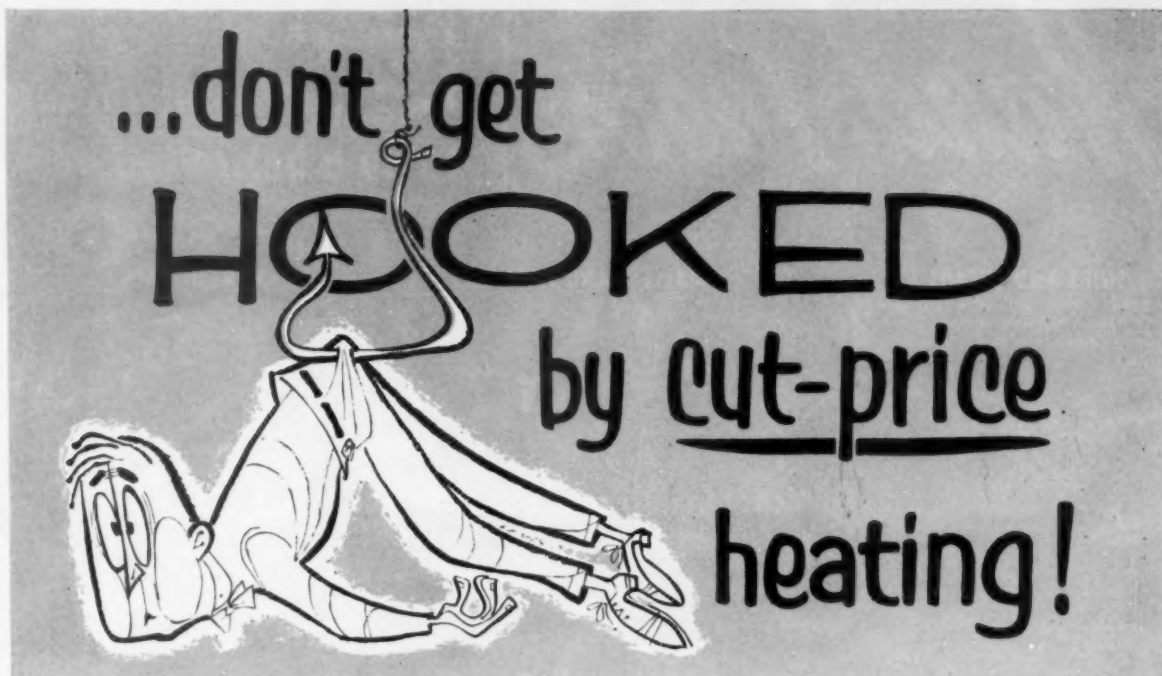
William Droegekamp, chairman of the warm air heating committee, pointed out that a number of the association's members had wanted an advertising program such as that just conducted for the past 26 weeks, but that the lack of a full time secretary had prevented getting the ground-work done. He also indicated that it was the belief of the warm air heating committee that by continuing the program competition between companies would soon cease to be based on low prices but would come to the point where the personality and ability of individual salesmen would be the deciding factor in who gets the job. He listed four results that could be expected from a continuing program. It would: 1) Raise the standards of the entire warm air heating industry in the Milwaukee area; 2) Make the association better known to the public, thus creating more prestige for its members; 3) Benefit the public; 4) Result in a better profit margin to the installer.

## Public Awakens to Importance of Heating System

The principles of newspaper advertising were covered by Richard Munkwitz of the Milwaukee Journal, who explained that about 1,500,000 people read the building section of the weekend newspapers. He said that about 1000 calls a week had been received from readers since the first ad appeared, and that previously a call requesting information about the heating system was a rarity. These calls have been passed along to the executive secretary for answering. The advertising program was based around the editorial material presented to the public. This material was slanted to give information to all classes of prospects for heating and cooling systems. The 13

(Continued on page 96)





Tempting bait, this cut-price heating! But look out for the "hooks"! Service call-backs, for example. They'll dog you day and night when complaints of noisy operation, chilly floors, high fuel bills, untimely breakdowns and other symptoms of a cut-price heating job roll in. They can cost you *far more* than those few profit dollars you had in the job. And how just one shivering customer can tarnish your good name!

Refuse the bait when you're pressured on price. A quality Janitrol gas or oil furnace, in a system that follows National Warm Air Heating and Air Conditioning Association recommendations, costs just a little more to install—and *far less*

in the long run. What's more, it provides comfort, health and peace-of-mind no cut-price system can deliver. When you tell prospects these facts, they prefer quality every time. So *tell* them and *sell* them!

Right now, Janitrol dealers are cashing in on the newest, freshest advertising campaign in the industry. Big, colorful ads in leading national consumer and building trade magazines with big circulation in your market are upgrading demand for quality heating—the kind only Janitrol dealers can provide. Better ask your Janitrol representative about a Janitrol dealership in *your* market!



## NEW JANITROL FEC WINTER CONDITIONERS WITH FAMOUS *Dura-tube* HEATING HEART!

For City Gases, LP and LP Gas-Air. Compact, clean, efficient. Fit confined spaces. Easy to install—fully serviceable from front. *Feature exclusive Dura-Tube Armored Heating Heart and Amplifire Ribbon Flame Burner* for fast, thrifty heating, new freedom from burn-outs, cracking, rusting! All-steel cabinet with distinctive blue hammertone baked enamel finish has beauty and eye-appeal. Seven sizes from 60,000 to 180,000 Btu/hr. input. Matching summer cooling conditioner available.

...the best years of your business  
begin with ...

**Janitrol**  
HEATING . . . COOLING



Janitrol Heating & Air Conditioning Division  
Surface Combustion Corporation, Columbus 16, Ohio  
In Canada: Moffats, Ltd, Toronto 15

Complete line of gas and oil furnaces, unit heaters, conversion burners, water-cooled and air-cooled summer cooling equipment, combination heating-cooling units.

# Hand Tools

that make it easier  
for sheet metalworkers  
to do a better job

## SNIPS AND SHEARS

Compound Leverage, Double Cutting,  
Straight, Combination,  
Extra Heavy and Bench Type



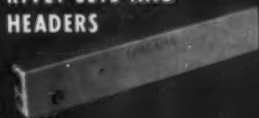
## GROOVERS



## HOLLOW PUNCHES



## RIVET SETS AND HEADERS



## BRACE AND WIRE BENDER



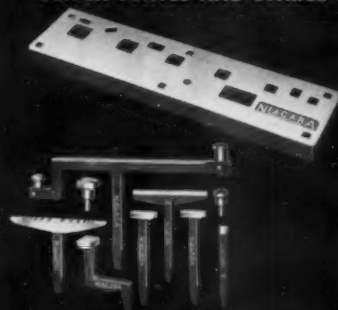
## MALLETS AND HAMMERS



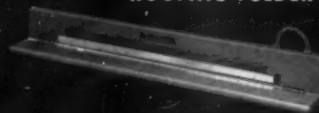
## CIRCUMFERENCE RULES & STRAIGHT EDGE



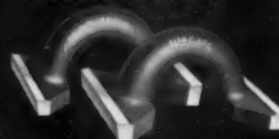
## BENCH PLATES AND STAKES



## ROOFING FOLDER



## DOUBLE SEAMERS



## PIPE CRIMPER



## HANDY TONG



## GUTTER BEADER

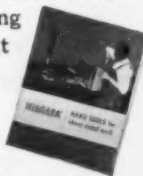


**Cut it! Punch it! Bend it! Join it!**

Whatever the sheet metal job, there's  
a Niagara Tool you can  
count on to do it easier and better.

Like hundreds of thousands of satisfied sheet  
metalworkers, you, too, will like the heft,  
feel and ruggedness of these tools . . . and  
you're sure to find the *right* one in the size you need.  
The next time you need a tool, make it a Niagara.

It'll help you turn out neat, clean,  
quality work . . . faster and better. For ease in  
ordering, Niagara's *NEW Bulletin 78* is now available.  
It's a hand tool guide for sheet metalworkers,  
not only illustrating and describing  
the long established line, but  
also introducing nine new shears and  
snips. Get this *New Bulletin 78*  
today by writing to:



# NIAGARA

NIAGARA MACHINE & TOOL WORKS, BUFFALO 11, N.Y.

DISTRICT OFFICES

Buffalo • Cleveland • Detroit • New York • Philadelphia

Dealers in principal U. S. cities and major foreign countries

America's Most Complete Line of Presses, Shears, Press Brakes, Other Machines and Tools for Plate and Sheet Metal Work.

new!



MODEL T-1

... the  
industry's  
first  
low-cost  
"adjustable-in-  
the-field"  
ceiling diffuser

**NEW!**

**CURVED CONTOUR** cone design provides air diffusion efficiency never before equalled—AT SUCH AN ECONOMICAL PRICE.

**NEW!**

Unsurpassed beauty . . . the ultimate in modern day design.

**NEW!**

Easiest . . . fastest in the world to install—adjust.

The T-1 diffuser is only one Model of Titus' exciting completely new line of **CEILING DIFFUSERS AND ACCESSORIES**. If you haven't received literature on this new line—**WRITE TODAY!**

TITUS CEILING DIFFUSERS



*designed by*

**TITUS**

Fills a long-standing need in the air conditioning field! The new Model T-1 is the first diffuser made that **COMBINES** the top quality features, attractive styling and high diffusion efficiency of much more costly units—**WITH TRULY MODEST PRICING.**

This 3-cone diffuser is simplest of all to install, adjust. Inner cone assembly

quickly, easily removed—snaps back into position. Adjustable—on the job—to 2 different air patterns by simply changing screws on inner assembly.

Rugged steel construction. Beautiful aluminum finish. For exposed duct or flush mounting. Each diffuser individually packaged in damage-proof carton

**MAIL COUPON TODAY FOR FREE LITERATURE**

**TITUS MFG. CORP., Waterloo, Iowa**

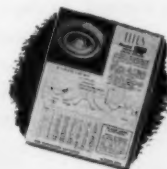
Gentlemen: Rush me complete details on your new economy line of **MODEL T-1 CEILING DIFFUSERS** that give **BIG** performance at a **BIG** savings in cost.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



... **HANDLE OVERHEAD AIR** *Gracefully* **WITH PRECISION**

## WITH THE ASSOCIATIONS

(Continued from page 92)

insertion program had five general subjects, with two or three ads on each. These subjects were: 1) How to get the most from a heating system; 2) How to convert an old plant to automatic operation; 3) Free consultation service backed by association; 4) Converting to gas fuel; 5) Cooling equipment and how it could be adapted to both new and existing houses.

The effectiveness of a continuous advertising program was pointed out by Walter Marth, one of the cooperating dealers. As an example, he told how he had responded to advertising from automobile and spring water dealers, expressing his opinion that the people interested in heating equipment responded pretty well as he had. He proposed a motion that the association continue its WHAM program indefinitely, and the motion was carried unanimously.

### Southern California Uses Stamp Plan

MANUFACTURERS and suppliers of heating equipment as well as heating dealers are cooperating with the Institute of Heating and Air Conditioning Industries in a promotional campaign designed to improve the quality of heating installations in southern California. To help meet



HEATING DEALERS of southern California selected this emblem as their "stamp" to indicate participation in industry approved program

the expenses involved, a "stamp plan" has been adopted under which manufacturers and suppliers of equipment marketed in the southern California area are being asked to furnish stamps with their equipment — 50 cent stamps for floor and wall furnaces and \$1.00 stamps for forced air equipment. Stamps may be purchased from the institute's offices and, according to IHACI, this cost is to be passed on to the ultimate consumer, thus incurring no expense to industry members.

Objectives of the program are:

1. To promote the interests and welfare of the public through the advancement of methods and practices in the manufacture and installation of heating and cooling systems.
2. To establish recommended installation practices calculated to assure reasonable consumer satisfaction.
3. To encourage adherence to recommended installation practices.
4. To discourage unfair business practices.
5. To encourage fair methods in distributing heating, ventilating and air conditioning equipment.

6. To encourage acceptance of these principles by engaging upon an extensive consumer advertising program through the facilities of television, billboards, newspapers and radio.

7. To accomplish these ends through a mutual educational program.

8. To identify participating manufacturers and dealers to the consuming public.

### Manufacturers Endorse Plan

The heating division of the manufacturers section of the Pacific Coast Gas Association endorsed the stamp plan during a recent special meeting called to discuss the project and the purposes to be served. Among the manufacturers participating in the plan are Coleman Co., Inc., Day & Night Mfg. Co., Grove Furnace, Inc., Hammel Radiator Engineering Co., Hayes Furnace & Mfg. Co., Holly Mfg. Co., International Sales Co., Lennox Industries Inc., Mission Appliance Corp., Payne Beverly Mfg. Co., The Payne Co., Rheem Mfg. Co., Royal Jet, Inc., San Carlos Mfg. Co., Sequoia Mfg. Co. and Utility Appliance Corp.

### Urge 100% Dealer Participation

Non-member dealers as well as members of the institute are being urged to take part in the program, and meetings are being held in major cities throughout the area to acquaint non-members with operational details. Over 400 dealers engaged in the industry are expected to participate in the program.

### Kansas City Apprentice School Opens

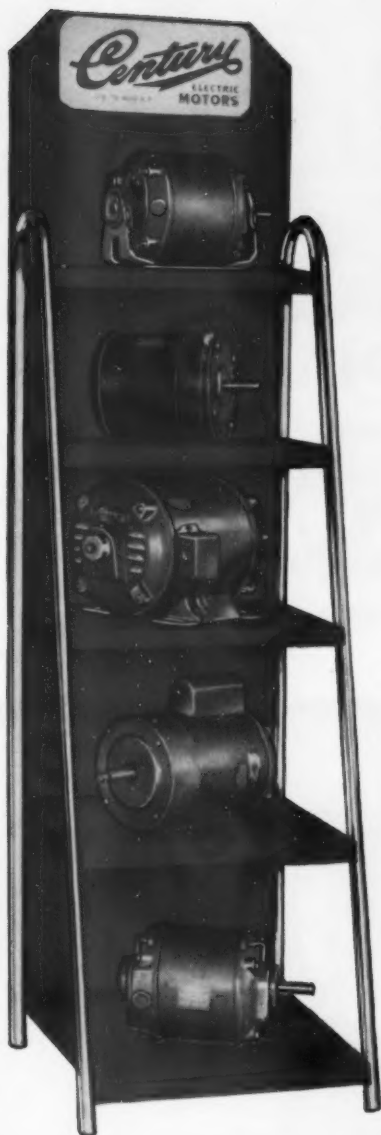
THE SHEET METAL AND Air Conditioning Contractors' Association of Greater Kansas City opened its 1956-57 apprenticeship school recently when 150 men began their training.

Three new instructors have been added to the school, replacing those who chose to retire from teaching. They are: Henry Arendt, John Huxley and John Gruss. Bill Rider, who was a member of the school faculty last year has been asked to serve as supervisor of instructors for the association's apprenticeship committee. Collectively the apprentices will put in about 23,000 hours of class work and shop practice during the school year. There will be 10 separate classes conducted by 10 instructors.

Contractors were reminded by the apprenticeship committee of the rule that no apprentice be required to work when it will interfere with his attendance at school.

At the same time, the association apprenticeship committee has set up a budget of \$13,000 for the fiscal year from Sept. 1 to Aug. 31, 1957. This has been pro-rated to the contractors on the basis of contributions to the welfare fund during the last fiscal year.





**Performance-Rated**  
1/8 to 400 H. P.



Offices and Stock Points in Principal Cities

**MAIL THIS  
COUPON TODAY!**

for extra profit...  
**WITHOUT** extra work  
sell



## **REPLACEMENT MOTORS** **Performance-Rated for Blower,** **Pump and Compressor Applications**

Think how many of your jobs need new motors. You can cash in on this natural selling opportunity when you stock and sell Century Performance-Rated replacement motors. Century's complete range of size, speed, frame, mounting and torque characteristics helps you give every job precisely the right replacement motor for top performance.

Your nearby Century distributor will be happy to work closely with you to provide ample stock and speedy service.

This handsome, sturdy display stand puts you in the motor business immediately... and it requires only a few square feet of floor space. Find out how you can get it FREE with your first assortment of Century Performance-Rated motors

GET FULL DETAILS on this opportunity...

## **CENTURY ELECTRIC COMPANY**

**CENTURY ELECTRIC COMPANY, 1806 Pine St., St. Louis 3, Missouri**

Send me all the facts about Century's Display Stand Motor Selling Plan:

Name.....

Company.....

Address.....

City.....State.....

# here's what heating and ventilating contractors say about INLAND TI-CO®

Galvanized Steel



... says James N. Johnson, Shop Supt. of The Austin Sheet Metal Co., Chicago, Ill. "Ti-Co keeps our labor costs down! When you're the sheet metal contractor for large housing projects involving hundreds of homes, such as the Brynhaven development in Elmhurst, it's necessary to keep a large inventory of fittings in stock. Mass production of sheet metal fittings can be costly if you're having trouble with cracking and flaking of the "iron". That's why we like Inland's Ti-Co. We never have to waste time and money doing an intricate fitting over again because Ti-Co's coating never comes off."



... says P. W. Olmen, President of Jamar-Olmen Co. and W. A. Kuechenberg, President of R. B. Hayward Co., co-contractors of the sheet metal work on Chicago's new Prudential Building. "We used Ti-Co exclusively for all the duct work for air handling in the Prudential Building. Over 1,000 tons went into the job in all ... the largest single air handling sheet metal job ever undertaken in Chicago. With Ti-Co we knew we could depend on getting uniformity of coating and base metal."



... says Maurice L. De Wulf, heating contractor of Roselle, Illinois. "Ti-Co Galvanized sheets cut my fabrication costs 20 to 25%! Figure for yourself what it costs to form a 10-foot heating duct with a Pittsburgh lock seam. Then if the zinc coating flakes or peels along the seam—just double the cost! The job has to be done over, and though you may be able to salvage some of the material, you can't salvage those wasted man-hours."



... says Mr. Earl Rocky, Supt. of O. A. Wendt Co., Chicago, Ill. "I wouldn't use anything but Ti-Co in my shop. We have been using close to 500 tons of Inland Ti-Co per year for the past several years and I have yet to have a sheet flake on me. Even on the lockseamer, and we make our seams especially tight, Ti-Co performs beautifully. Ask any of the boys in my shop and they'll tell you the same thing."



... says H. G. Prizant, Owner and Manager of H. G. Prizant Co., Chicago, Ill. "We depend on Ti-Co for our profit. Take this intricate installation in the new University of Illinois Dentistry Building, for example. Although the galvanized steel cost less than \$10, there was probably about \$250 worth of labor in this piece. If the sheets cracked along the lock seams, or even if their zinc coating had flaked off severely, it would have meant re-doing the entire job. With Ti-Co we don't have to worry about re-doing jobs because of steel failure."



... says Fred Rickey, Supt. of F. R. Inskip & Co., Champaign, Ill. "Ti-Co Galvanized sheets save us 50¢ a sheet. We used to waste a lot of time and material with conventional galvanized before they were ready for pattern layout. We lost about ten minutes shop-time on the shear and about a pound of metal. Then we had to refigure the sheet size to make a layout. We don't have this waste using Inland Ti-Co sheets. They're always uniform. We make layouts and shear Ti-Co as delivered. And we save at least \$2,500 a year."



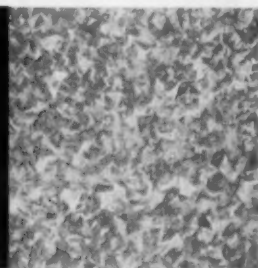
Yes, more and more sheet metal contractors throughout the middle west are learning the tremendous difference between Ti-Co and just any conventional galvanized sheet. Inland Ti-Co is made by a special continuous galvanizing process which eliminates the brittle iron-zinc layer that causes conventional galvanized coatings to flake.

Ask your dealer for Inland Ti-Co and look for this stencil on all your galvanized sheets.

## INLAND STEEL COMPANY

38 South Dearborn Street • Chicago 3, Illinois

Sales Offices: Chicago • Milwaukee • St. Paul • Davenport  
St. Louis • Kansas City • Indianapolis • Detroit • New York





**PROGRAM COMMITTEE** for South Bend District Meeting of Sheet Metal and Warm Air Heating Contractors' Association of Indiana gets together before getting program under way. Above are (l to r) Don McCloskey, Frank Anderson, V. Hazelton, J. R. Walker and B. L. Walker



**CONVENTION PROGRAM** advisors' committee gathered for informal discussion of subject and speakers for 1957 annual meeting in Indianapolis. Left to right are M. Goff, W. E. Garber, Harold Boyd, Chas. H. Buck, Bud Carr and W. H. Meggs

## Indiana Dealers Hear Talk on Financial Problems

OUR MODERN ECONOMY is a complex one. Few businessmen understand all of its causes and ramifications. Bankers and others connected with the lending of money have made a thorough study of it and are in the best position to advise dealers and contractors about individual financial problems, according to John DiMatteo, First Banc-credit Corp., Chicago, who addressed members of the Sheet Metal and Warm Air Heating Contractors' Association of Indiana at their district meeting held in South Bend, October 5.

The board of directors held an afternoon meeting prior to the evening dinner and business session. Subjects discussed dealt with the progress of the campaign to increase the association's membership (100 Mile Klassic)

which was reported to be doing very well; the Purdue Short Course; and the 39th annual convention scheduled for February 7-8, 1957.

In his report on the tight money situation, Mr. DiMatteo pointed out that the amount of money available for loans is based upon the money held in savings accounts. When the money loaned equals 50 percent of the money in savings accounts, Mr. DiMatteo said, banking authorities consider the situation a sound one, both from an economic point of view and from money available for investment in business expansion. The present rate, according to Mr. DiMatteo, is 57 percent, which accounts for the difficulty in obtaining loans at low interest rates.

(Continued on page 104)



**SPONSORS** of district meeting included (l to r) Bill Peck, C. O. Stauffer, Dick Young, George Primich and Mark Lake



heating and air conditioning contractors know...

## "time is money... P-K® screws save both!"



### *Speedy, trouble-free fastenings help keep installation costs to a minimum*

There's a good reason why Parker-Kalon Sheet Metal Screws are preferred by heating and air conditioning men. They've learned that P-K screws keep installation costs down because they're headed, threaded, pointed and hardened to provide quick, sure fastenings every time.

There's just no reason to take chances with "bargain screws" . . . screws that prove difficult to drive . . . screws that loosen or break . . . screws that "lose their heads." Insist on P-K Sheet Metal Screws and get consistent high quality and dependability—true economy. For sheet metal screws that drive right and stay tight, users agree . . . "if it's P-K, it's O.K."

# PARKER-KALON® fasteners

Sold Everywhere Through Leading Industrial Distributors

Factory: Clifton, New Jersey—Warehouses: Chicago, Illinois—Los Angeles, California

**PARKER-KALON DIVISION**, General American Transportation Corporation  
Manufacturers of Self-tapping Screws, Socket Screws, Screwnails, Masonry Nails,  
Wing Nuts and Thumb Screws

# NEW ROTALOCK<sup>\*</sup> VALVE

*Gives Tecumseh Air Conditioning Compressors Every Advantage  
For Flexible Factory or Field Installation*



## \* IT'S DETACHABLE

Rotalock leads the trend towards greater production flexibility of air conditioning systems. Production changes from (1) valve to tube, (2) tube to valve, and (3) different sizes of valves and tubes can be made without ordering new compressors.

## \* IT ROTATES A FULL 360°

Rotalock may be set at any angle to correspond with the direction of the tubing. Short or compound bends are eliminated.

## \* IT LOCKS IN ANY POSITION

Simply determine the correct angle for best installation into the system and lock Rotalock into position. The angle may be changed or adjusted as necessary.

**\* IMPROVED WORKING DIMENSIONS** This important consideration has been accomplished chiefly by relocating the gage port at right angles to the valve body. In this position it is more easily accessible and does not add to the overall valve dimension.

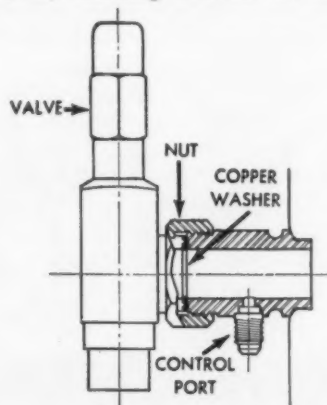
**SIMPLIFY ORDERING** One bill of materials covers the compressor to meet the customers requirements. Valve and tube connections or adapters are ordered separately as component parts. Three types of connections for either suction or discharge side are possible.

**CONTROL PRODUCTION** Rotalock permits customers to vary and adjust production as needed. The same compressors can be used for air or water cooled applications, and except for the 5 H.P. a single overload handles each. Saves time both in factory and field installation.

**REDUCE INVENTORY** The flexibility, simplicity and economy of Rotalock are advantages that mean less paper work, less handling and less inventory.

## HERE'S HOW ROTALOCK WORKS

The basic elements of the new Rotalock are illustrated at the right. Of major importance is the design of the seating arrangement between the spud and the valve or tube adapter. Note that the spud has a groove machined around the circumference of the face. A corresponding but smaller ridge is machined on the face of the valve or adapter. By inserting a soft copper washer between these faces, a tongue and groove seal is formed by the pressure of the nut. As pressure is applied, the washer is forced into the groove by the ridge on the valve, resulting in a positive seal around the full circumference of the face. Further, the seal will have equal pressure on all areas, and as more pressure is applied, the greater will be the sealing effect. This eliminates all possibility of leaks due to crimped gaskets, loose bolts, or imperfect thin gasket materials.



OVER 28,000,000 COMPRESSORS IN USE TODAY

The World's Largest Producer of  
Compressors for the Refrigeration Industry

**TECUMSEH PRODUCTS CO.**

**TECUMSEH**

Marion, Ohio  
Tecumseh, Michigan

EXPORT DEPT.—P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

**National Advertising** that  
creates interest...

**Sales Promotion** that  
attracts inquiries...

**Co-op Allowance** that  
gives your **local advertising**  
effort a lift...



*You get so much more  
... with*

# MOR-SUN

**HEATING AND AIR CONDITIONING**

*Here are the reasons YOU should be a Mor-Sun Dealer...*

**A COMPLETE LINE** of warm air heating and air conditioning equipment.  
**QUALITY DESIGN AND CONSTRUCTION** that ensures customer satisfaction.  
**THE RIGHT SIZE ... THE RIGHT PRICE** for every home heating and cooling market.

**NATIONWIDE DISTRIBUTION** with immediate delivery from local stocks.

**SALES TRAINING** sponsored by Mor-Sun — practical, professional "how-to-sell" instruction.

**NATIONAL ADVERTISING** that pre-sells Mor-Sun, builds customer recognition and acceptance, boosts your business and profits.

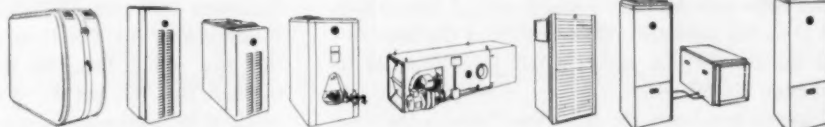
**SALES PROMOTIONAL HELPS**, selling tools to help you interest the prospect and close the sale.

**CO-OP ADVERTISING PLAN** for your local use — newspaper, radio, TV, and other approved media.

**FOR ALL THE DETAILS** of one of the soundest business opportunities open to heating dealers, see your nearest Mor-Sun Distributor—he's listed in the Yellow Pages of your telephone directory—or write directly to: Mor-Sun Furnace Division, Morrison Steel Products, Inc., 609 Amherst Street, Buffalo 7, N.Y.

In Canada: Mor-Sun Ltd., Waterloo, Ont.

**THE COMPLETE LINE**



● There's a Mor-Sun Warm Air Furnace and Air Conditioner for every home heating and cooling requirement... the right size... the right price... for new construction or modernization.

Also manufacturers of Morrison Roly-Door Steel Sectional Overhead Doors and Morrison Service Bodies



## WITH THE ASSOCIATIONS

(Continued from page 100)

### Money for Loans to Remain Tight

More money at low interest rates is not likely to become available for at least nine more months he said. This was based upon the old rule of supply and demand. It will take that long for the supply of money to catch up with demand. Using this point as a theme, he urged dealers and contractors to bid their jobs more carefully, to charge more for their work in order to have more of their own money available at the end of each job.

He suggested that dealers would find their business would be financially healthier if dealers sold fewer heating-cooling systems at a higher markup per job instead of working on a narrow margin for a large number of jobs. Mr. DeMatteo indicated that he did not believe the total number of industry installations would fall off during the year, but that more of the business would be spread around to everyone and over a 12 month period.

In discussing future prospects for the heating-cooling industry, he pointed out that there is no such a thing as a saturated market. The inevitable forming of family units, plus deterioration of existing single family units would mean that the industry could expect its annual volume to remain about where it presently stands. However, in 1960 the greatest business expansion this country has ever seen will get underway, he said.

### Lists Sales Pointers

The five steps to every successful sale are based around these points, he said: 1) need, 2) type, 3) source, 4) price and 5) time. In describing these steps more fully and explaining how to use them effectively, he suggested that each dealer build his sales talk around them and if the sale was lost to someone else, the dealer should review his presentation to locate its weakness.

The sales points could be developed around these ideas:

- 1) Need—Develop prospect's need from comments made during early conversation.
- 2) Type—Play up equipment features and how they fit the prospect's need.
- 3) Source—Point out that your company is the most logical one to make the installation because of the added service features you offer.
- 4) Price—Every improvement to a home is worth something and when broken down into cost per month, the small difference between the highest and lowest bids offered is hardly noticeable. The quality of the improvement is the feature that makes a fair price superior to the minimum bid offered.
- 5) Time—Press home the point that "now is the time to buy." Any curtailment of plans only means that the services and conveniences of the new system will postpone the enjoyment to be derived from the installation.

The market for new heating equipment is tremendous, Mr. DiMatteo said. Over 60 percent of all single family houses have out-of-date heating plants and one out of every two farm houses do not have central heating systems.

The refreshments and entertainment were provided by seven northern Indiana wholesalers — G. W. Berkheimer Co., C. A. Girard Co., South Bend Supply Co., Tiffin Art Metal Co., Valley Equipment Co., W & W Heating Supply Co., Young Heating Supply, Inc.

### Old Timers Hold Annual Golf Party

OLD TIMERS of the oil burning industry living in the Midwest held their annual Golf-un Party at River Forest Country Club, Elmhurst, Ill. on Sept. 21. Visitors included Jim Owens, national chairman of the Old Timers Club and guests from Los Angeles and Cleveland.



MIDWEST OLD TIMERS Committee checks annual Golf-un Party schedule. Left to right are Charles R. Bennett, H. A. Maccubbin, Charlie Bendix and Hugh Courtcot.

The annual trophy for the lowest golf score was won by John Westmont. Runner up was Charles R. Bennett. Additional low scores were turned in by Lew Ehrich, D. Flickinger, George Bornquist, Willie Jones and Art Walters. The Blind Bogey prize went to Sam Olson.

Midwest chairman Charlie Bendix and secretary H. A. Maccubbin provided the groundwork for the outing and awarded the prizes.

### Kalamazoo Sees Films on Selling

MEMBERS OF THE KALAMAZOO Sheet Metal, Roofing, Heating and Air Conditioning Contractors' Association saw two sound films on selling, which were supplied through the William F. Winstrom Sales Co., Holland, Mich. at its September meeting.

One of the films dealt with selling quality, while the other considered the presentation of the salesman's case and overcoming possible objections.



Won't crack...won't peel...won't flake...

**EVER!**



# WHEELING SOFTITE<sup>®</sup> COP-R-LOY<sup>®</sup> GALVANIZED SHEETS



**This is Wheeling's Richmond warehouse.** Other Wheeling warehouses and sales offices are strategically located throughout the country. They all offer immediate delivery of warehouse-stocked Wheeling items such as softITE Cop-R-Loy Galvanized sheets, Galvanized Furnace Pipe, snap lock or closed seam Perimeter Heating or Air Conditioning Pipe, and accessories, Style K Gutters, Square Conductor Pipe, Flashing, Valleys, and fittings.

Here's a galvanized sheet that can really be *worked* with never any fear of chipping or flaking. Why? Because it's ductile and tight coated, made on Wheeling's new continuous galvanizing line. Bead it, seam it, fold it... do anything you like... this coating will go anywhere, do anything the base metal will!

As a result, Wheeling softITE Cop-R-Loy Galvanized Sheets give tighter joints, surer seams, longer spans. They make every job look better, last longer. Remember softITE next time you order galvanized sheets. That's softITE, made only by Wheeling. Get full details from the Wheeling warehouse or sales office nearest you!

## WHEELING CORRUGATING COMPANY, WHEELING, WEST VIRGINIA

**Warehouses:** Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis. **Sales Offices:** Atlanta, Houston.

furnaces You can count on



## forced air gas by *Sequoia*

Anyone can make claims. SEQUOIA dealers have the proof of years, that it pays consistent profits to sell the line with consistent dependability. The importance of SEQUOIA dependability is accented on today's competitive market.

These are facts you, as a SEQUOIA dealer, can count on: Engineered for the easiest installation . . . Equipped with the finest quality parts obtainable. . . Sold everywhere at fair, competitive prices.

These are the furnaces you can depend upon: *Pacers* and *Closeteers* (uprights), *Rev-flo* (counter-flow), *Horizontals* . . . in all popular sizes for residential and light commercial.

WRITE FOR YOUR COMPLETE CATALOG AND TRADE PRICE LIST TODAY.

### SEQUOIA MANUFACTURING CO.

1000 Brittan Avenue San Carlos, California

ANOTHER  
KEY



SEQUOIA  
DEALER

#### MORENO SHEET METAL WORKS of Lake Charles and Sulphur, Louisiana

Sequoia is proud to salute this key heating and air conditioning dealer of Southwest Louisiana, a key market in the growing South.

In this, their tenth anniversary year, founding brothers Arthur and Fred Moreno include three plants, a new \$30,000 office building and a still-growing staff of 25, among their many accomplishments.

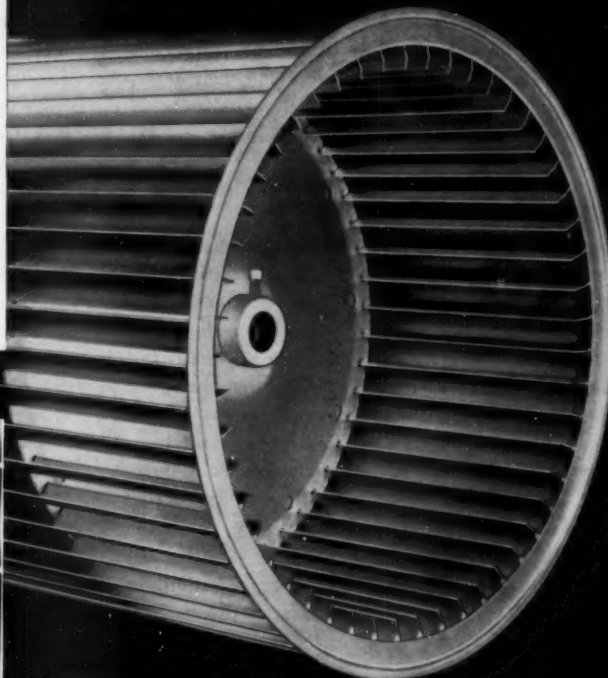
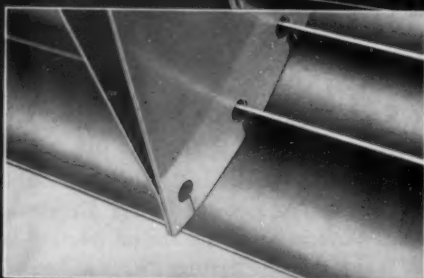




## LEADERS RELY ON LAU

25 Years Building Better Blowers

Lau engineers are working daily toward those small improvements that add up to big advances. Leaders Rely on Lau for this reason. In the Preslok® Wheel, Lau is again FIRST with a needed development, again setting the pace in design and engineering.



## HIGHER SPEED WHEEL



### THE LAU BLOWER COMPANY

2000 Home Avenue • DAYTON 7, OHIO

Other plants at Kitchener, Ont., Canada, and Azusa, California

LB-8-56

Answer to the need for higher speeds in modern air-conditioning equipment. It is guaranteed to increase operating speed maximums at least 50%! Yet, Preslok® Wheel is completely interchangeable with respect to air delivery, static pressure and horsepower input with standard Series "A" wheel. Each blade is mechanically attached to center disc, held by 4 individual steel fingers individually pressed within the blade. Further,  $\frac{3}{8}$ " has been added to end ring for more rigidity and to bear the stresses of higher speeds. Center disc redesigned to include new airflow shape for smoother air patterns; additional  $\frac{3}{4}$ " spread of hubs adds stabilization to shaft. All sizes in full and  $\frac{3}{4}$ " width from A-9 through A-15; retooling in process to equip all Series "A", Econo-Pak® and Electro-Wheel® units. Lau also manufactures weld wheels and riveted wheels— $1\frac{3}{4}$ " to 30" width,  $4\frac{1}{4}$ " to 30" diameter; capacity range: 50 to 22,000 cfm, 0 to 2 s.p.



SERIES "A"  
BLOWER



ELECTRO-WHEEL  
BLOWER



LAU-PAK  
BEARING



SERIES "A"  
WHEEL



WELD  
WHEEL



LAU-STEEL  
PULLEY



BEARING  
BRACKET



PANEL  
FAN



RANCHER  
FAN

WORLD'S LARGEST MANUFACTURERS OF AIR-CONDITIONING BLOWERS

## WITH THE ASSOCIATIONS

(Continued from page 104)

### Work on Insurance Plan

THE CAROLINAS ROOFING and Sheet Metal Contractors' Association is studying group insurance plans for proprietors, partners, officers and employees and their dependents. Gordon Waters of Waters Bros., Rocky Mount, N. C. is chairman of the group insurance committee.

### Nessell Addresses Detroit Group

C. W. NESSELL was the featured speaker at a recent meeting of the Detroit Warm Air Heating Association. Mr. Nessell, chairman of the National Warm Air Heating and Air Conditioning Association's mobile laboratory, described the process involved in performing a five day test of a heating or cooling system. He pointed out that these tests revealed the most serious problem faced by a heating dealer is that of cold floors. He said that if the heating design manuals were closely followed, cold floors would not be any more of a problem than any of the others encountered.

N. J. Biddle, secretary of the association, says that decals denoting membership in the Detroit organization are now available and may be purchased at a price of 50 cents each.

### Distributors Hold Annual Meeting

MEMBERS of the National Association of Sheet Metal Distributors held their 46th annual meeting at the Marlborough-Blenheim Hotel, Atlantic City. Lee J. Haines, president, E. E. Souther Iron Co. discussed "The Importance of Standardization of Types and Sizes of Perimeter Fittings for Warm Air Furnaces" and John P. Speck of the Tiffin Art Metal Co. covered "The Sale of Seconds, Rejects or Surplus by the Mills to Distributors." Other speakers were Noel E. Girard, Girard Steel Supply Co., and Norman W. Foy, vice president, sales, Republic Steel Corp.

### How Toledo Evaluates Apprentices

THE JOINT APPRENTICE COMMITTEE of the Toledo Warm Air Heating Contractors' Association says that it judges the ability and progress of an apprentice on the following points:

1. His employer's report of his skill and attitude on the job.
2. His attitude in regard to improving himself as an apprentice.
3. His study and work completed in classes.
4. His attendance and promptness at school.

The committee reports that a proposal providing for an additional year's training for apprentices has been adopted and is now included in the labor committee agreements.

### OHI Dealers Meet in North Carolina

THE FIRST REGIONAL round table dealer management conference sponsored by the distribution division of Oil-Heat Institute was held at the Grove Park Inn, Asheville, N. C. Fifty-one dealers from Tennessee, North and South Carolina, Georgia, Virginia and Maryland were in attendance. Five topics were discussed: 1) Natural Gas Competition; 2) The Value of the Integrated Fuel, Service, and Installation Operation in Combating Competitive Fuels; 3) Sales Training and Organization; 4) Improving Management Procedures; and 5) L-P Gas Competition. In the afternoon three films were shown — "House-warming Party" designed for consumer showings; "Breakthrough for Profit," which deals with the mechanization of office procedures; and "Nozzle Servicing." Another regional round table conference is scheduled to be held in St. Louis, Mo. February 20.

### Power Roof Ventilator Volume to Rise

A DEFINITE TREND to the use of power type roof ventilators for schools, commercial buildings and multiple unit housing structures was reported by the Air Moving and Conditioning Association at its annual meeting held recently at White Sulphur Springs, W. Va. According to Robert W. Nelson, president, the value of shipments of power roof ventilators is expected to reach \$15,000,000 this year — an increase of 25 percent over 1955 totals.

### IHACI Schools Begin

THE INSTITUTE OF HEATING and Air Conditioning Industries is sponsoring a series of engineering courses in southern California schools under the adult education program. Elementary and advanced courses in heating, ventilating, air conditioning and sales are now being offered in Los Angeles, Pasadena, Pomona and Glendale and additional classes will be set up in other communities if sufficient interest is shown. For further information write the Institute of Heating and Air Conditioning Industries, P. O. Box 2C595, Pico Heights Station, Los Angeles 6.

### Sees Grave Shortage of Apprentices

ACCORDING TO THE OHIO Sheet Metal Contractors' Association *News*, only 15 new apprentices in the construction industries are being added for each 17 lost. The national minimum estimate calls for 200,000 apprentices, the *News* points out, and only about half that number are now being trained. "Our local associations and members that see the need and are promoting the schooling of apprentices," the *News* says, "are to be complimented, and we urge them to keep up the necessary programs."





*don't monkey around  
with substitutes...*

## GET HIGH QUALITY, LOW COST WITH AUER'S PERIMETER LINE!

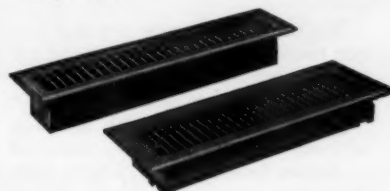
● If high costs have you up a tree, switch to Auer Registers and Grilles! That's what many Sheet Metal Contractors are doing to bring rising overhead down to earth. They're saving up to fifty percent on installation costs alone on every heating, cooling or combination heating-cooling job.

Auer Perfusaire diffusers incorporate many "on-the-job" time-saving features, such as knockouts to eliminate the need for cutting and fitting to various duct sizes, built-in dampers that provide perfect system balancing without time-consuming adjustments or assembly at installation site. Auer registers are shipped as a complete unit ready to install... no other accessories to buy.

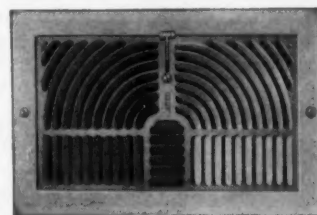
Shown here are Auer registers engineered for use in floor, wall, ceiling or baseboard installations in new or old construction. Before you make your next start, look into the cost saving advantages of the Auer Perimeter Line. Visit your nearest Auer dealer, or write for complete illustrated literature and specifications.



Auer "Perfusaire" only 18" long has the capacity of 4 to 8-foot units. Provides perfect air pattern from baseboard level. Fits 2½" x 12" and 2½" x 14" duct openings.



Auer DRP Registers for perimeter floor installations. Available in 2½" x 14" and in sizes 4" and 6" wide, 10", 12" and 14" long.



Auer "Fanaire" for "Perfect Pattern" heating and cooling. Can be used for high or low sidewall installation or as a ceiling outlet.

**Auer**  
REGISTERS  
and GRILLES

## THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"

6602 CLEMENT AVENUE • CLEVELAND 5, OHIO

# HAVE YOU EVER FIGURED THE Profit Advantage WITH MONCRIEF?

**BUILT RIGHT** — Durably constructed for extra years of trouble-free service.

**PRICED RIGHT** — Sales leadership and volume manufacturing provide production economies that permit competitive pricing.

**EASIER TO INSTALL** — Engineered by men who know the business, who keep the installer always in mind.

**A UNIT FOR ANY JOB** — Complete line — Gas, Oil, or Coal Furnaces; Year 'Round Units; Cooling Units; Gas Unit Heaters; Gas and Oil Conversion Burners — Moncrief has the size and type needed.

**OVER 60 YEARS OF LEADERSHIP WITH TOP-NOTCH EQUIPMENT** — Since 1895 Moncrief has been the standard of quality for warm air heating units.

● Ever consider your business as the whole "pie", and wish you could have a bigger piece of profit from it?

Ever consider how much time you spend shopping around, looking for a better deal and a greater profit?

With Moncrief, you get that bigger piece of profit *consistently*, because your Moncrief Wholesaler offers you a better deal *all the time*.

From one source, with one-stop service, you get *everything* you need — better heating units, better cooling units and the tops in prefab' furnace pipe and fittings.

The money you save from this one-source buying — plus easier installation, trouble-free performance and extra business referred to you by satisfied Moncrief users — adds up to that extra piece of profit you've been seeking.

See your Moncrief Wholesaler, today!



THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

**MONCRIEF**

FURNACE PIPE AND FITTINGS

# NOW!

*"Service Saver"*

SERIES 8000



## *Two Great* **WEBSTER Fuel-Units!**

- The revolutionary new *"Service Saver"* with the rotary filter that never clogs ... never needs cleaning
- Webster's famous Series 8000 units — the industry standard for dependable performance and easy servicing

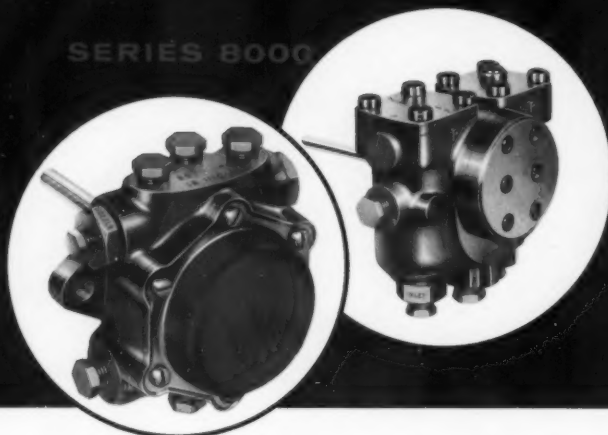
# 2 ways to Save Time

...WITH **WEBSTER'S**

SERIES 8000

REVOLUTIONARY NEW

*"Service Saver"*



WEBSTER introduced the first Fuel-Unit 32 years ago to save time and trouble for the service man. And, following this same idea, we've made improvement after improvement. Now you can take your choice of two great units...each with distinctive advantages.

#### WEBSTER'S SERIES 8000

- 50% fewer parts than previous models—simplifies servicing
- Easy to clean basket-type strainer... remove from top without spilling a drop of oil... ideal for "vestibule" jobs
- Quick opening, quick closing piston valve
- Two models... single stage and true two-stage
- Positive sealing outlet seat
- Self-aligning outboard bearing
- Design eliminates tank hum and hydraulic pulsation

#### WEBSTER'S *"Service Saver"*

- No strainer screens—no cleaning... uses an entirely new compact, self-cleaning, rotary-type filter
- Completely interchangeable with any pump now on the market—without troublesome connection changes
- Two models... single stage and true two-stage
- Unlimited flexibility—360° rotation and extra ports let you make connections where they are easiest to reach
- Quick conversion from one-pipe to two-pipe system in seconds without additional parts

The unprecedented demand for the "ServiceSaver," introduced just a few months ago, is still running ahead of our ability to produce this revolutionary new unit. But some "ServiceSavers" are now reaching the market on the burners of leading manufacturers—and more and more will be coming. In the meantime, the SERIES 8000, the industry standard for dependability and easy servicing, is still available for immediate delivery.

for data on the 8000 Series Fuel-Units, write for Bulletin A882  
for data on the "ServiceSaver" Fuel-Units, ask for Bulletin 49A1

## WEBSTER ELECTRIC



RACINE  
WISCONSIN

MANUFACTURERS OF FUEL-UNITS, IGNITION TRANSFORMERS AND DELAYTROLS



## WITH THE ASSOCIATIONS

(Continued from page 108)

### NHAW Schedules Business Conference

THE NATIONAL HEATING AND Airconditioning Wholesalers, Inc. will hold its second annual business conference program on Dec. 4 in conjunction with the 10th anniversary convention of the association at the Deshler Hilton Hotel, Columbus, O.

Booths, with top-level representatives from each manufacturer, will be set up. Wholesalers and dealers will be invited to visit each booth to discuss sales, sales promotion, business management or technical subjects with the representatives. To assure no conflicting action during the conference, all other association convention activities will be suspended for that day.

### NWAHACA of Canada Holds School

THE 17TH NATIONAL WARM AIR Heating and Air Conditioning Association of Canada held another of its special schools recently at Queen's University in Kingston, Ontario. The school was organized following general acceptance of the association's education program as an aid to all Ontario vocational teachers interested in the sheet metal technical section. Organizing the school was done by Norman Smith, chairman of the Technical School Teachers' Association.

Four days of lecturing on forced warm air heating installations highlighted the instructional periods. Also, the 15 vocational teachers who were attending the school were taken on a tour of Queen's University's heating and air conditioning laboratory.

### Alabama Holds State Convention

THE ROOFING, SHEET METAL, Heating and Air Conditioning Contractors' Association of Alabama recently held its second annual state-wide convention in Birmingham.

Because of the popularity experienced by the association's first convention last year, the committee agreed to allow the meetings to run one day longer, making it a four-day convention. Besides the business meetings, the convention guests attended the Auburn-Tennessee football game, a barbecue and picnic, a banquet and a dance. In addition a full program of activities was arranged for the ladies attending the convention.

Registration started on Sept. 26, and the convention proper opened the same day with the first of a series of panel discussions and speeches on sheet metal, heating and air conditioning.

### California Group Works on Upgrading

THE "STAMP PLAN," a program to help upgrade heating installations, was explained at a recent meeting of the Warm Air Heating Institute of Northern California by Dar Knowles, executive director of the organization, who

said, "the average pay to the heating dealer for making a warm air heating installation in new house projects was once 10 percent or more of the house purchase price, but today this has dropped to as low as 5 percent."

The executive director went on to explain that the "stamp plan" will help to finance the proposed upgrading program. Under this plan, the institute sells stamps to the manufacturers or their representatives—a \$1 stamp for each central system furnace and unit heater and a 50 cent stamp for each wall heater or floor furnace. These stamps will be affixed to the equipment or placed in special envelopes furnished by the institute for stapling to the outside of the crate, Mr. Knowles stated. Coordinated with the sale of stamps will be an area-wide publicity and advertising campaign to inform and educate the builders and home owners.

Mr. Knowles went on to say: "To meet the demands of builders for lower and lower heating bids in the face of rising costs, warm air heating installations in many cases have been reduced to a minimum furnace and distribution system. Poor performance, trouble and dissatisfaction on the part of home owners have followed in many cases.

"Recognizing that these conditions are detrimental to the industry, our association decided to do something about it. Organization of the stamp plan committee, and plans to sell the stamps resulted from the committee's meetings.

"As the funds received from sale of stamps were building up, a supplementary contribution for assistance in institutional advertising was obtained from the utility company serving our area and an advertising agency was appointed to handle the promotion and publicity.

"But, of course, no amount of publicity will be helpful in achieving our upgrading aims unless all the warm air heating dealers take an active part and cooperate in the program."

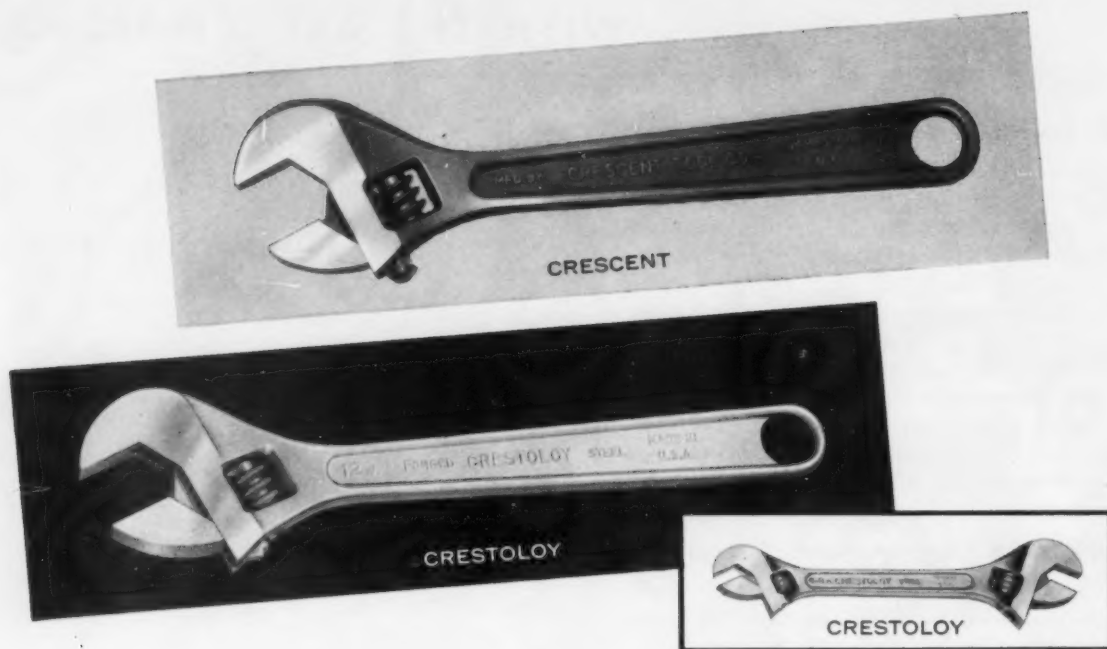
### Big Heating Potential Seen for Canada

THERE WERE 150,000 warm air furnaces installed in Canada last year, and this figure should be surpassed in 1956, according to a warm air heating industry forecast made by T. Harry Bulloch, president of the National Warm Air Heating and Air Conditioning Association of Canada.

"Nine out of every 10 new homes constructed in 1955 were equipped with a forced warm air heating system, which speaks for itself in regards to the wonderful job of consumer acceptance the warm air heating industry has experienced in Canada," Mr. Bulloch states.

"In line with the association's constant efforts to upgrade, we must now educate the consumer to demand the quality he deserves and the quality that can be given by

(Continued on page 117)



## CRESCENT AND CRESTOLOY outsell all other **ADJUSTABLE WRENCHES**

CRESTOLOY Wrenches are forged from a special alloy steel permitting thinner, trimmer design with greater strength and less weight than conventional types. They are available in Single End patterns, 4" to 24" size. Double-end in four models combining 4-6; 6-8; 8-10; 10-12 inch sizes. The 15", 18" and 24" sizes, available in Single End pattern only, are distinguished by their tapered handles. There is no stronger or finer Adjustable Wrench than CRESTOLOY.

CRESCENT Wrenches are forged from selected carbon steel and specially heat-treated to increase their toughness and durability. Due to their lesser cost and relatively great strength, they are widely used in industrial and service operations where thinness is not essential. Available in Single End Patterns, 4" to 18".

Both CRESCENT and CRESTOLOY Wrenches represent the best in design and workmanship, and carry the same guarantee.

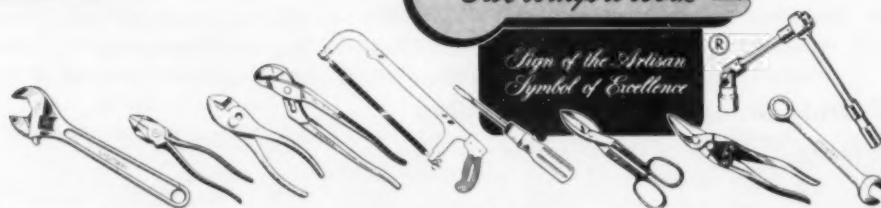


CRESCENT and CRESTOLOY TOOLS are sold by hardware dealers and industrial distributors everywhere. Look for the bright yellow Crescent Display panels and select from one of the world's greatest assortments of quality hand tools.

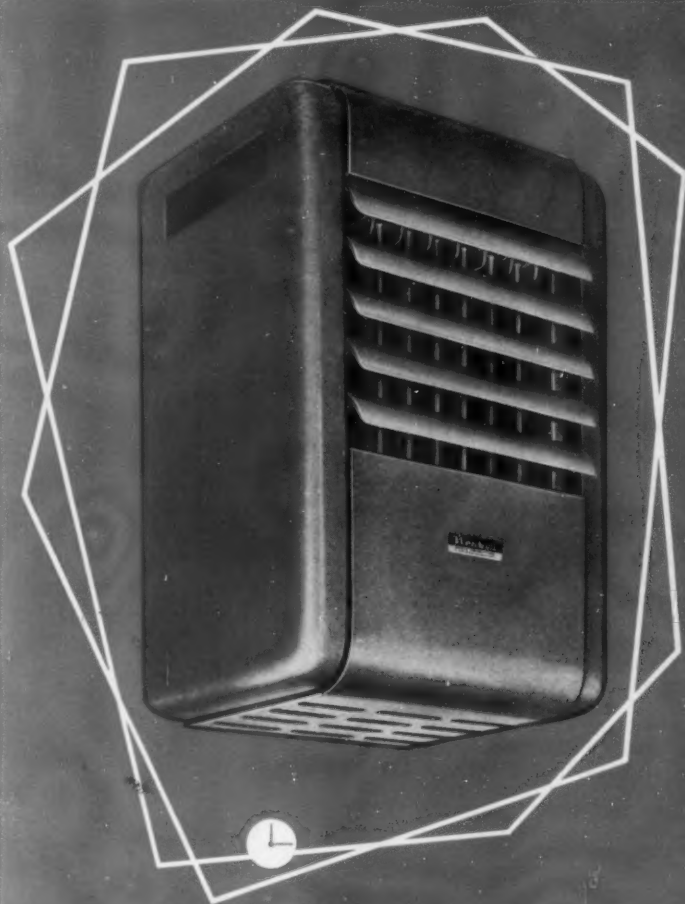
**CRESCENT TOOLS**

*Give Wings to Work*

*Sign of the Artisan  
Symbol of Excellence*



Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by  
**CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK**



## immediate deliveries

**FROM OUR WAREHOUSE  
OR WHOLESALE STOCKS**

Added to all the other good reasons for choosing Nesbitt Gas-Fired Unit Heaters is this one: IMMEDIATE DELIVERY.

The Nesbitt plan of production commits us to maintaining ready stocks of all sizes right through the PEAK SELLING SEASON.

This means that you can order any size

Nesbitt Gas-Fired Unit Heater for any type of gas or gas-air mixture RIGHT NOW or at ANY TIME during the heating season and expect it to move IMMEDIATELY direct to your job.

Seven sizes: 400 to 2900 cfm;  
25,000 to 200,000 Btu/hr input.

For all gases and gas-air mixtures.

Beauty, comfort, structural quality,  
space-saving installation and service  
economies make Nesbitt your best choice.

Send for Publication 280 today.

John J. Nesbitt, Inc. Philadelphia 36, Pa.

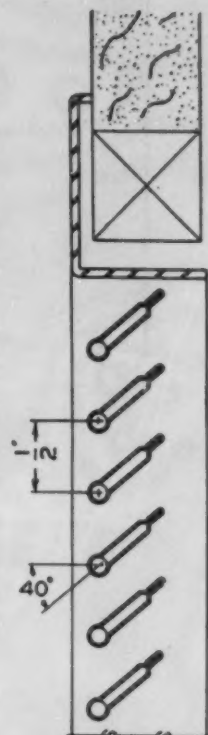
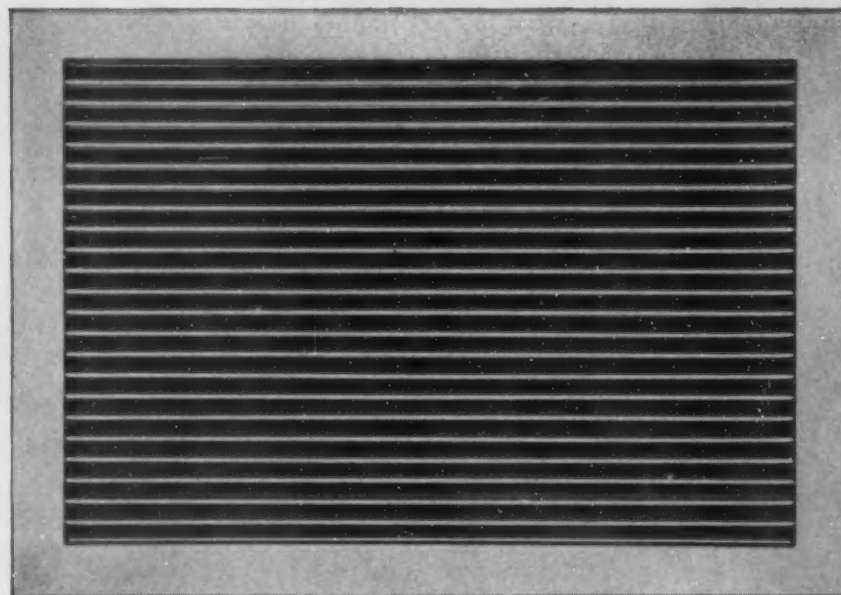


# Nesbitt GAS-FIRED UNIT HEATERS

Approved by AGA and Canadian Standards Assn; listed by Underwriters Laboratories; sold through wholesalers

# now **Aerovane**

**RETURN AIR GRILLES AND REGISTERS**  
available with 1/2-inch bar spacing



Vertical Cross Section  
through Aerovane T110D Grille

Designed to meet the demand of those who specify and install commercial air conditioning systems, Aerovane Return Air Grilles and Registers are now available with horizontal bars set at an angle of 40° on 1/2-inch centers.

The new design provides a modern, streamlined appearance and virtually eliminates the problem of see-through.

Aerovane T110D Grille is illustrated above . . . Aerovane T117D Register combines the Grille and adjustable opposed blade damper unit.

For complete information, size selection data, and list prices, write for Bulletin 201.

For economy and prompt delivery,  
specify these standard sizes\*

10x6	18x6	24x24	36x24
10x8	18x12	30x12	36x30
12x6	18x18	30x18	48x24
12x8	24x12	30x24	48x30
12x12	24x18	36x18	48x36

\*Non-standard sizes available.

**TUTTLE & BAILEY**  
division of Allied Thermal Corp.

New Britain, Connecticut



## WITH THE ASSOCIATIONS

(Continued from page 113)

all reputable manufacturers and heating contractors across the Dominion. We must also sell the builder that in the long run he will save time, money and even face by installing nothing but a deluxe system in his projects.

"The consumer market potential for warm air heating in Canada is unquestionable and very attractive. Conservatively speaking, the consumer will spend approximately \$170,000,000 each and every year for the next 10 years on home heating. Projecting this over a 25-year period, there is a potential of more than \$4 billion."

### OHI Holds Sales School in Oregon

THE SPECIAL SALES training school, sponsored by the Oil-Heat Institute and directed by Ray Horan, General Controls Co., visited Oregon for a three-day sales training session on Sept. 5-7. It was jointly sponsored by the Distribution Div. and the Oil Heat Institute of Oregon.

Included in the school's presentation was the art of prospecting, presentation, increasing personal salesmanship, how to figure a job at a profit, how to set up adequate controls to insure sales profits, how to recruit salesmen, how to train salesmen, how to manage salesmen, importance of a price book, how to keep supplied with prospects and how to advertise. The schools are specifically designed to instruct sales managers, supervisors and sales trainees of heating oil and oil heating equipment.

Following the Oregon session, instructors and other training personnel moved to Seattle, Boise and Reno to hold similar programs.

### Discusses Business Operation Costs

OPERATION COSTS AND THEIR relationship to running a business were discussed by J. C. Champion, assistant manager, Ernst and Ernst Certified Public Accountants, during the Grand Rapids Heating Association monthly meeting on Sept. 18. Also, Mr. Champion discussed how operation costs could be cut to help take some of the risk out of operating a business. This was the first of a series of educational meetings designed to improve the welfare of the heating industry in Grand Rapids.

### Detroit Discusses Certified Heating

THE DETROIT WARM AIR HEATING Association held a certified quality heating program Sept. 13, with L. J. Monahan, assistant sales manager, Janitrol Heating and Air Conditioning Div., Surface Combustion Corp., directing the discussion.

Points brought out by Mr. Monahan included the design of heating systems based on recommendations published by the National Warm Air Heating and Air Conditioning Association; warranty of the system to provide

filtered, humidified air and to keep the home at a design temperature; bonding the installing dealer in order to insure faithful performance of the conditions specified in a certified quality heating installation; the warranty of a system to conform to all applicable codes established by local, state or federal governmental agencies and the requirements of local public utility; and the warranty of all mechanical equipment against defects in material or workmanship for a period of at least one year.

### Chicago Golf Group Has Third Meet

THE THIRD MEETING of the Chicago Warm Air Golf Association's annual tournament was held September 25 at Ruth Lake Country Club, Hinsdale, Ill. Beautiful weather added to the competitive spirit existing among those eligible to win the annual trophy for the two lowest scores turned in for the season's three games. The winner was E. H. Frick.



ANNUAL TROPHY WINNER, E. H. Frick, (right) is congratulated by Chicago Warm Air Golf Association president Mel Jackson

Other prizes were awarded at the banquet. Winning the prize for the day's low net score was Otto Zeman who was awarded a bronze ashtray with the figure of a golfer making a drive and a portable radio. Runners up, who also won prizes, were Mel Jackson, C. E. Price, Al Verbeek, H. Maccubbin, H. Duerst, Frank Schroeder, Walt Aschlieman, Lars Schulein, Harvey Manney, Art Schultz, George Anderson, Harry Himelblau, George Bunt, B. A. Johnson, Charlie Bennett, Dan Collins, Tom Jones, Lem Miller, Neil Manney, Hank Ripple, Rip Collins, Wayne Limbert, Joe Butler and Jerry Anderson.

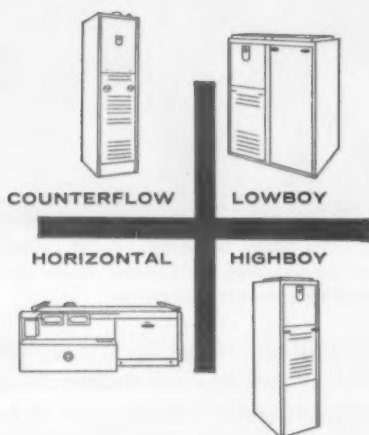
Special prizes were given guests for low scores turned in. Winning these prizes were Steve Pilsen and H. Neilson. Blind Bogey prizes were won by George Anderson, Neil Manney and Frank Schroeder.

# "Rheem has everything ...and then some!"



*...says woman heating contractor*

Recently at a business awards dinner given in her honor, Mrs. Ione Houston of Des Moines, Iowa, paid high tribute to Rheem's profitable line of furnaces and the important part it played in helping her set new sales records.



Remember, there's a Rheem model and size to fit every furnace requirement.

Mrs. Houston stated, "As a businesswoman, I'm interested in two things: customer satisfaction and profits. Both are vital to my heating business. I relied on Rheem, and it really paid off! The Rheem line of furnaces has met all of my expectations—and then some! When a heating contractor makes full use of Rheem sales help, and takes advantage of all the favorable features included in the Rheem line—then sales come naturally, and so does customer satisfaction."

This competent little lady, who has made a name for herself in an industry dominated by men, knows what she's talking about. For under her guidance the C & H Home Service Company, featuring Rheem furnaces, has set new records for both sales and profits, since she became general manager.

You, too, will find that Rheem has everything a heating line should have. National acceptance, recognized quality—and, there is a Rheem model and size to fit every furnace requirement. Call your Rheem wholesaler soon and let him show you how Rheem can mean new sales and greater profits in your heating business.

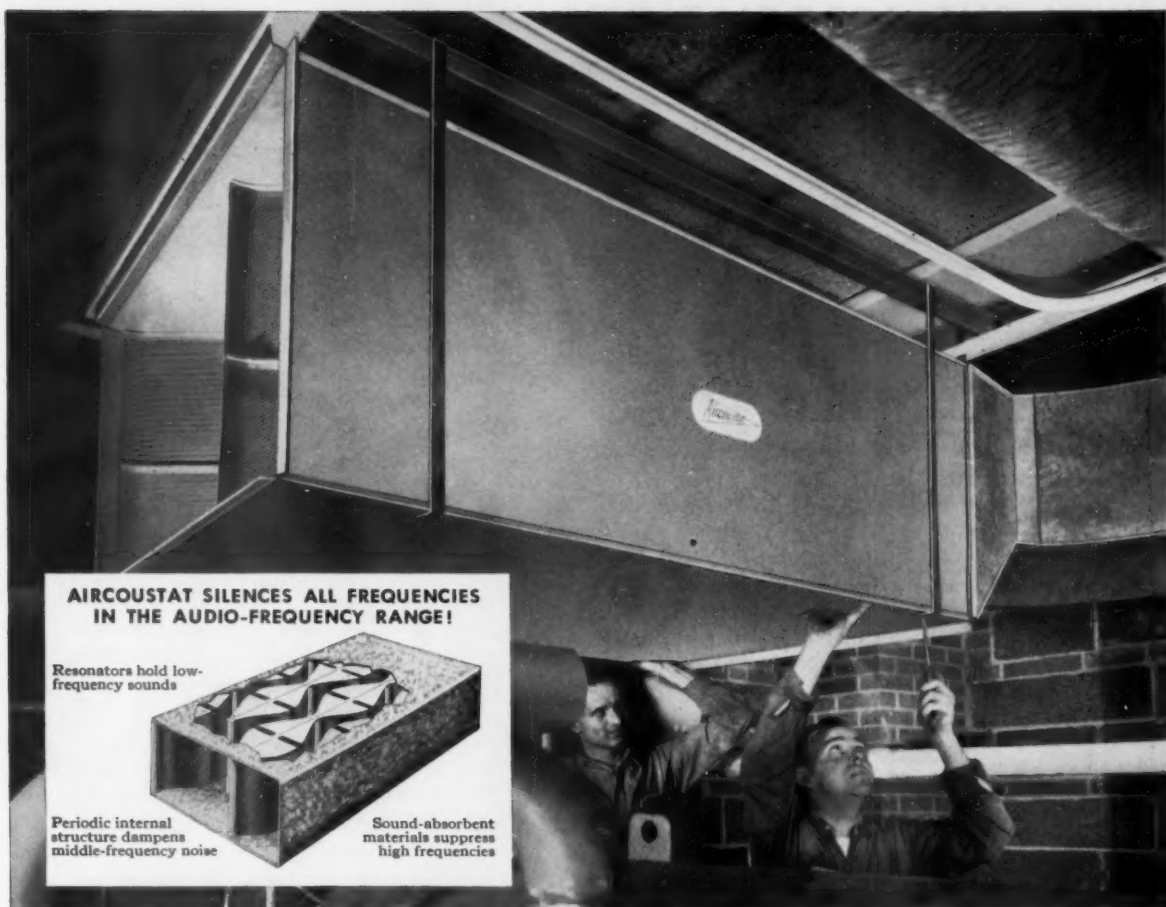
Rely on



for better products — bigger profits

RHEEM MANUFACTURING COMPANY

SEATTLE • HOUSTON • CHICAGO • SOUTH GATE, CALIFORNIA • SPARROWS POINT, MARYLAND



## AIRCOSTAT\* Sound Traps eliminate air conditioning noise at 50% less cost

**Acoustical Performance Guaranteed. Easy to Install. Pre-Engineered—No Design or Layout Headaches.**

Revolutionary AIRCOSTAT Sound Traps for low-velocity air conditioning systems reduce labor, materials and storage costs. Deliver guaranteed noise control efficiency.

You don't need special tools for installation. Since one 5-foot AIRCOSTAT does the job of 80 feet of ordinary duct lining, you have less to install. Fitting AIRCOSTAT units is easy since they fit any shape of duct . . . and are not dependent upon the size of the duct cross-section. Pre-engineering saves design and layout time because AIRCOSTATS don't have to be individually designed for each particular

duct in the system. AIRCOSTAT simplifies your storage problems and lets you get materials on the job early. In-shop lining of duct is eliminated—you can ship your ducts nested together and store them outside on the job site.

Discover how AIRCOSTAT Sound Traps can save you time and money . . . create greater customer satisfaction.

\*Koppers Trademark



### INDUSTRIAL SOUND CONTROL

**Engineered Products Sold with Service**

#### MAIL THIS COUPON TODAY

KOPPERS COMPANY, INC., Metal Products Div., Industrial Sound Control Dept., 6511 Scott St., Baltimore 3, Md.  
Gentlemen: Please send me a free copy of your booklet on AIRCOSTAT Sound Traps.

Name..... Title.....

Company.....

Address.....

City..... Zone..... State.....

## Coming Events

### November

- Nov. 26-27—National Warm Air Heating and Air Conditioning Association, board and committee meetings. Netherland Plaza Hotel, Cincinnati. George Boeddener, Managing Director, 640 Engineers Bldg., Cleveland 14.
- Nov. 26-28—Refrigeration and Air Conditioning Contractors' Association, annual convention. Balmoral Hotel, Miami Beach, Fla. Ray Kromer, Executive Vice President, 10660 Carnegie Ave., Cleveland, O.
- Nov. 26-28—American Society of Refrigerating Engineers, annual meeting. Hotel Statler, Boston. R. C. Cross, Executive Secretary, 234 Fifth Ave., New York 1.
- Nov. 28-29—National Warm Air Heating and Air Conditioning Association, annual convention. Netherland Plaza Hotel, Cincinnati. George Boeddener, Managing Director, 640 Engineers Bldg., Cleveland 14.

### December

- Dec. 3-5—National Heating & Airconditioning Wholesalers, Inc., annual convention. Deshler-Hilton Hotel, Columbus. O. W. R. Bull, Executive Director, 1200 W. Fifth Ave., Columbus, O.

### January

- Jan. 20-24—National Association of Home Builders, annual exposition. Conrad Hilton and Sherman Hotels and the Coliseum, Chicago. John M. Dickerman, Executive Director, 1625 L St., N.W., Washington 6, D. C.

### February

- Feb. 7-8—Sheet Metal and Warm Air Heating Contractors' Association of Indiana, Inc., annual convention. Hotel Severin, Indianapolis, Ind. Frank E. Anderson, Executive Secretary, 439 S. 17th St., Terre Haute, Ind.
- Feb. 10-13—New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association, Inc., annual convention. Hotel Niagara, Niagara Falls, N. Y. Clarence J.

Meyer, Executive Secretary, 567-69 Genesee St., Buffalo, N. Y.

- Feb. 14-16—Sheet Metal and Roofing Contractors' Association of Minnesota, Inc., annual convention. Lowry Hotel, St. Paul, Minn. Richard J. Grant, Executive Secretary, 867 Grand Ave., St. Paul 5, Minn.
- Feb. 18-21—Sixth Annual Industrial Ventilation Conference. Kellogg Center, Michigan State University, East Lansing, Mich. J. C. Barrett, Division of Occupational Health, Michigan Department of Health, Lansing 4, Mich.
- Feb. 25-27—Ohio Sheet Metal Contractors' Association, annual convention. Cleveland Hotel, Cleveland. Dion E. Mannen, Convention Chairman, 9104 Woodland Ave., Cleveland.
- Feb. 25-Feb. 28—American Society of Heating and Air-Conditioning Engineers, 63rd annual convention. Conrad Hilton Hotel, Chicago. A. V. Hutchinson, Executive Secretary, 62 Worth St., New York 13.
- Feb. 25-Mar. 1—International Heating and Air-Conditioning Exposition, International Amphitheater, Chicago. E. K. Stevens, Exposition Manager, International Exposition Co., 480 Lexington Ave., New York 17.

### March

- March 11-13—Sheet Metal Contractors' Association of Wisconsin, annual convention. Hotel Schroeder, Milwaukee. R. S. Schmieder, Executive Secretary, 8320 W. Blue-mound Rd., Milwaukee.
- Mar. 21-24—Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia, annual convention, held in conjunction with Southeast Trade Exposition. Atlanta Biltmore Hotel, Atlanta. B. L. Noblitt, executive secretary, P. O. Box 1196, Augusta, Ga.

### May

- May 15-18—Sheet Metal and Air Conditioning Contractors' National Association, Inc., annual convention. Edgewater Beach Hotel, Chicago. Joseph D. Wilder, Executive Secretary, 170 Division St., Elgin, Ill.



# CRANE



"Satisfied customers...  
that's what I'm getting with  
Crane Sunnyland Furnaces!"

"I took on the Crane Sunnyland line because I wanted quality. I wanted a name people knew and trusted. I wanted less trouble and more profit. A complete line to meet every specification . . . at competitive prices, too. Air conditioners for every unit. I got all this and a lot more with Crane. But, most of all, I got satisfied customers—they like Crane's dependability, economy of operation, and cost."

Isn't this what you want, too? Why not join up—like other dealers are doing? Crane's the fastest growing major line of warm-air furnaces and air conditioners in the industry.

## 3 OF MANY REASONS WHY YOU'LL MAKE MORE MONEY WITH CRANE



- 1 CRANE SUNNYLAND HORIZONTAL FURNACES.** Installed in crawl space, on basement ceiling, or in attic. Deliver an abundance of forced, filtered, warm air. Oil—84,000 Btu to 224,000 at bonnet. Gas—80,000 to 140,000 Btu input.



- 2 CRANE SUNNYLAND COUNTER-FLOW AND HI-BOY FURNACES.** Require minimum floor space and clearance. Have Fiberglas filter and over-size blower for clean, noise-free operation. Oil—84,000 to 123,000 Btu at bonnet. Gas—65,000 to 140,000 Btu input.



- 3 CRANE SUNNYLAND BASEMENT FURNACE.** Tubular radiator and round combustion chamber eliminates expansion and contraction noises. Smart enameled cabinet provides for easy inspection of all working parts. Gas—70,000 to 250,000 Btu input. Oil—84,000 to 224,000 Btu at bonnet.

### CRANE CO.

836 South Michigan Avenue, Chicago 5  
VALVES • FITTINGS • PIPE • KITCHENS • PLUMBING • HEATING

## Simple Arithmetic...

Type 302, Sheet Base Price **47.50** cents per lb.

Type 430, Sheet Base Price **-36.75** cents per lb.

*Saving* **10.75** cents per lb.  
in Stainless SHEET Costs!

### Now you can **SAVE \$215 per ton** in base price alone!

Many designers and fabricators who are currently using Type 302 stainless can, in numerous applications, specify Type 430 straight chromium stainless and take advantage of the 10¾ cents per pound difference in base price. Some of our customers are already saving more than \$215 per ton using our 430 MicroRold stainless sheet.

The steel industry estimates that 50% of all stainless sheet applications could satisfactorily employ Type 430, the least

expensive of all stainless grades, as an economical and practical material. When properly applied, Type 430 has all the desirable qualities of beauty, corrosion resistance, strength, long life and low maintenance that no other material, except stainless, can offer.

We are currently producing our MicroRold Type 430 sheets up to 48" wide in thicknesses .005" to .109" with 2B or 2D finishes; and in thicknesses .010" to .109" in No. 3, 4 and 7 finishes.

*Send for Your copy, "Care and Use of 430 MicroRold Stainless Steel"*

**Washington Steel Corporation**

9-A WOODLAND AVENUE, WASHINGTON, PA.



# WATERLESS

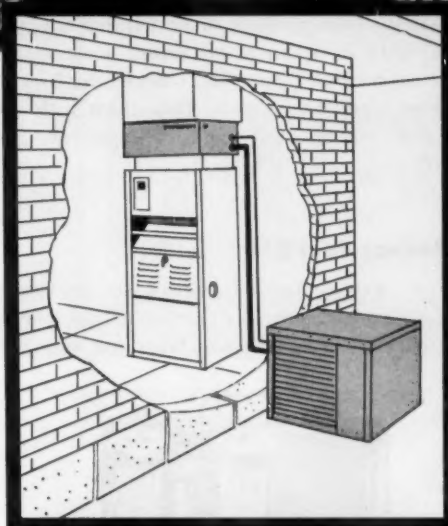
## TYPHOON CONVERT-TO-COOL



### SELL WARM AIR FURNACE OWNERS ON YEAR-ROUND AIR-CONDITIONING

Every warm air furnace is half an air conditioning system — so the sale is half made before you start. In fact, your own file of warm air installations is a ready-made prospect list for Typhoon Convert-to-Cool. Just show 'em how to enjoy year-round comfort for hundreds of dollars less than they ever expected to spend! And there's never a water problem with Typhoon — air-cooled units, backed by 46 years of engineering experience.

**Simple, efficient operation** Typhoon cooling coil goes on top of furnace and connects into present ducts. Compact refrigerating unit (only 3 feet square) is located at convenient spot outside the living area. Works on electricity alone. Air cooled — no water supply problem, no drainage problem, no plumbing, no sewer tax.



IDEAL FOR ATTIC FURNACES, LO BOY AND COUNTERFLOW FURNACES

### 2-3-5-8-10 TON UNITS



*Specialists in Air Conditioning  
Since 1909*

Typhoon Air Conditioning Co.,  
Division of Hupp Corporation  
505 Carroll St., Brooklyn 15, N. Y.

Show me how I can make money with Typhoon Convert-to-Cool.  
Send me Bulletin R7

Name \_\_\_\_\_

Address \_\_\_\_\_

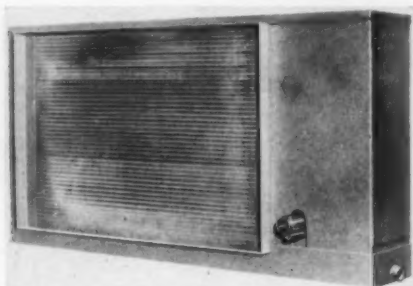
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

## Residential Evaporators

RESIDENTIAL evaporator units designed for installation in duct work of warm air furnaces — *Halstead & Mitchell, Dept. AA, Bessemer Bldg., Pittsburgh 22*. Rated at 24,000 through 60,000 Btuh, units feature "Turbu-



Flo" fin said to increase air turbulence to provide added safety factor measure of heat transfer. Capacities are based on standard conditions. Fins are aluminum, mounted on 1/2 in. O.D. copper tubing on 1 1/4 in. centers. Units are insulated throughout with glass fiber; steel cabinets and condensate pan are rust-protected.

## Gas Burner Test Kit

"GASAVER" KIT containing instruments for testing and adjusting all makes and types of gas burners in accordance with existing standards and ordinances

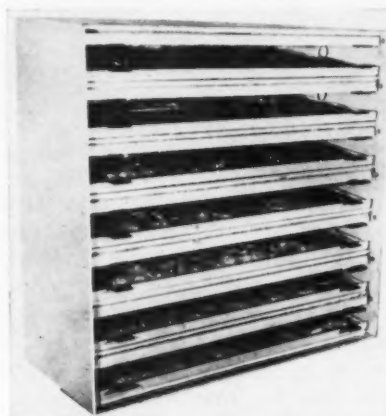


— *Bacharach Industrial Instrument Co., Dept. AA, 7301 Penn Ave., Pittsburgh 8*. Included in kit are CO<sub>2</sub> indicator and stack thermometer, draft gage, neutral pressure point indicator, gas pressure gage, oxygen indicator, carbon monoxide detector and two slide rule calculators for correlating CO<sub>2</sub> readings and

stack temperatures and to determine orifice size and pressure. Packed in compact instrument type metal carrying case, instruments are used to adjust draft head on conversion burners, check and adjust manifold pressure, set burner for complete combustion, and other operations.

## Dry Type Air Filter

"MULTI-PAK" dry type, renewable media air filter especially designed for exhaust applications which require standard construction air filters but need higher than normal cleaning efficiencies — *American*



*Air Filter Co., Inc., Dept. AA, 355 Central Ave., Louisville, 8, Ky*. Efficiencies can be regulated by variety of media ranging from cellulose fiber sheets through dense glass fiber mats, and variety of thicknesses and textures, the company reports. Seven "pockets" contain more than 50 sq ft of media in 2 ft X 2 ft X 2 3/4 in. unit.

## Direct Fired Unit Heaters

DIRECT FIRED unit heaters with four-pass design which eliminates internal baffles — *Auto-Therm Mfg. Co., Dept. AA, 6400 E. Seven Mile, Detroit 34*. Flame and combustion products counterflow four times across air to be heated; all surfaces exposed to heat of flame and flue gases are cooled by air to be heated. Designed for oil, gas or combination fuels, units feature: primary heat exchanger of heat resisting alloy steel with pivot construction for free expansion; double casing construction and double "S" locked connections; rotatable directional discharge nozzles or

(Continued on page 128)



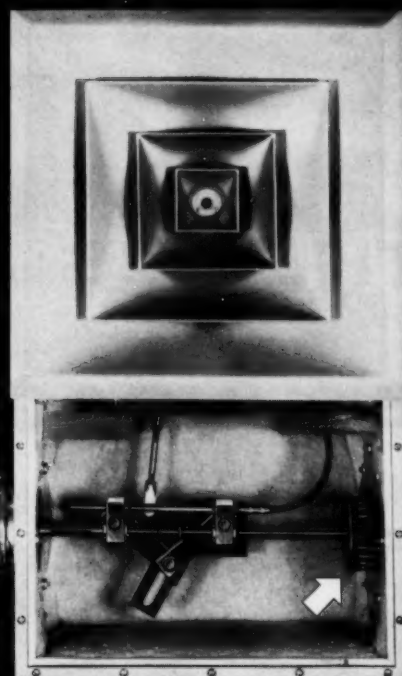
SECTION 2



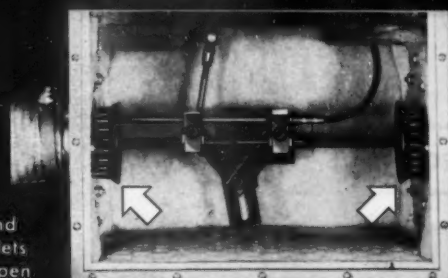
SECTION 1



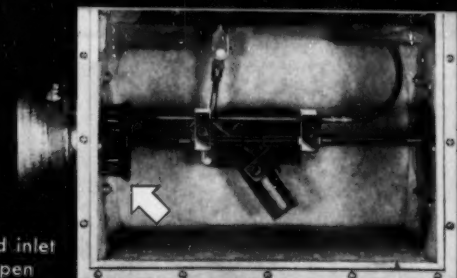
Anemostat High Velocity sound attenuation chamber



Hot inlet open in Section 1.  
Anemostat in place covers Section 2



Hot and cold inlets  
50% open



Cold inlet  
open

## How to mix and diffuse high velocity air automatically

The Anemostat High Velocity sound attenuation chamber is divided into two sections. Both hot and cold air from the main risers enter Section 1, which is an acoustically lined blending chamber, in which the volumes of air are controlled by the Anemostat serrated rocket-socket valves. When the thermostat is set, the rocket-socket valves move slowly back and forth, thereby adjusting the volume of air supplied through the hot and cold inlets. The velocity of the air which enters Section 1, at from 3500 to 6000 fpm, is automatically reduced by expansion.

As the blended air meets the temperature

requirements of the thermostat, it passes through a baffle arrangement into the acoustically lined Section 2 of the chamber, further reducing the db rating of the air.

The air then passes through the Anemostat Air Diffusers, where the aspiration effect causes mixing of room and supply air within the diffuser, resulting in further temperature equalization. The diffuser then delivers to the occupants of the room draft-free air at the desired temperature.

The Anemostat All-Air High Velocity distribution system offers other important advantages. It can be used with smaller

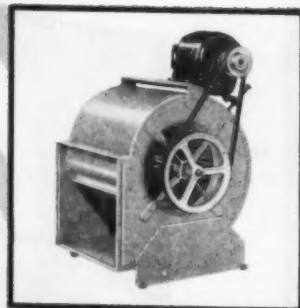
than conventional ducts. It can be installed faster and at less cost. It requires no coils, thus eliminates leakage, clogging and odors. Furthermore, Anemostat round, square and straightline diffusers with high velocity units blend into a wide variety of architectural designs.

Write for 1956 New Products Bulletin and Selection Manual 50 to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N. Y.

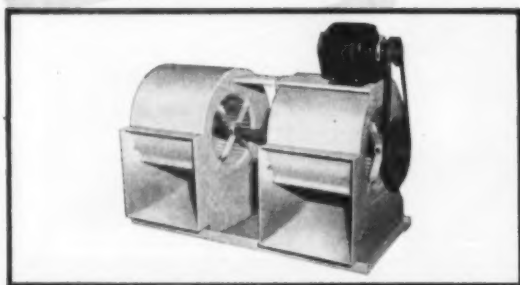
Anemostat: The Pioneer of All-Air High Velocity Systems



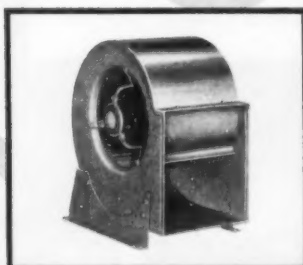
# THERE'S A BRUNDAGE BLOWER FOR EVERY NEED



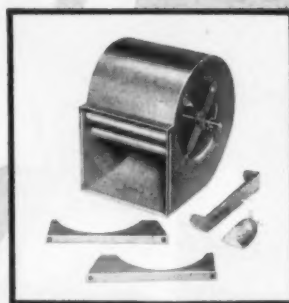
SERIES 'X'



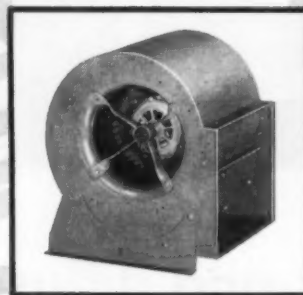
TWINS



DIRECT DRIVE



UNIVERSAL



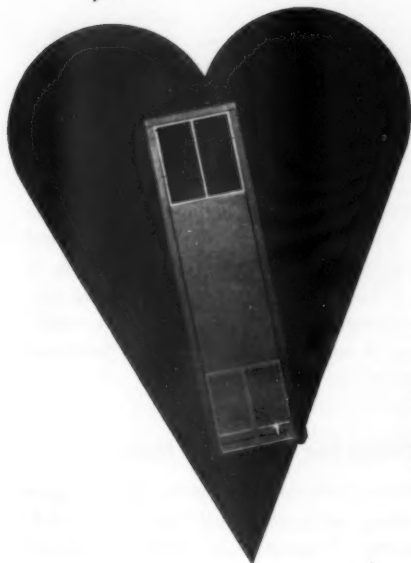
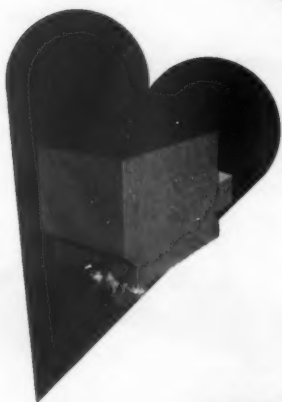
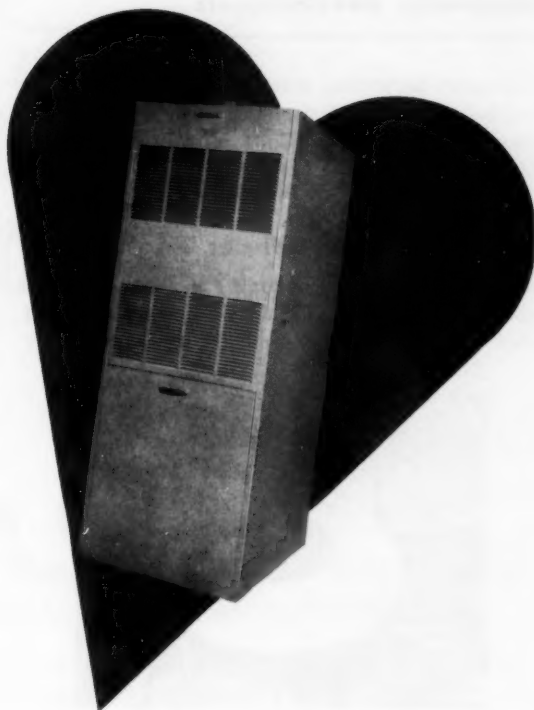
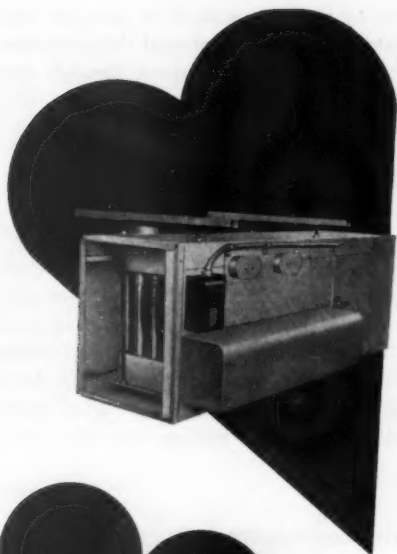
POWER CENTER

When you want to move air — reliably and efficiently — look to the Brundage Blower line. You'll find a wide range of blower types and sizes to meet your design requirements — plus 24 hour shipment on all stock models. *Write for complete catalog.*

## BRUNDAGE BLOWERS

The BRUNDAGE Company  
504 N. Park Street Kalamazoo, Mich.  
Phone 2-0251

Quality  
since 1919



## Have Your Customer's COMFORT AT HEART... SELL THEM COZY

... And it'll warm your heart to see the comfortable profits from the COZY line. Designed to handle over 90% of all home and small-building heating problems, COZY quality is backed by more than a quarter of a century of manufacturing experience. Get the facts on exclusive COZY features...and find out about the year-round, high-profit sales plan. *Write today!*

Forced-air vertical and space-saving horizontal models are adaptable for air conditioning. The COZY CHALLENGER is the best buy in floor furnaces, and COZY Recessed Wall Heaters are available for single- or dual-wall installation.



**The ADVANCE FURNACE CO.**  
WICHITA, KANSAS

**COZY**

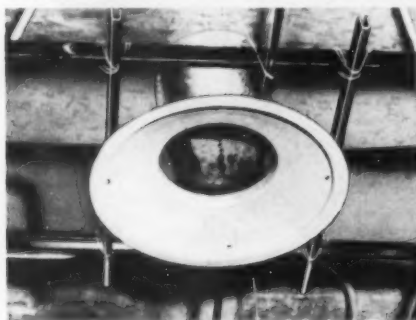
## equipment developments

(Continued)

duct outlet connection; automatic protection on flame, ignition, power or draft failure and abnormal discharge air temperatures. Units range from 400,000 to 2,000,000 Btuh output.

### Plaster Mounting Diffuser Ring

MODEL PMR plaster mounting ring designed to cut mounting costs for ceiling diffusers and prevent diffuser from sagging away from ceiling — *Titus Mfg.*



*Corp., Dept. AA, Box 810, Highway 20 West, Waterloo, Ia.* Unit serves as combination ceiling diffuser mounting ring and plaster ground and can be used for flush mounting diffusers on all types of ceilings, the company states. Neck of the ring is slipped over the duct and secured to lathing channels or other ceiling construction with two screws; diffuser is attached to ring with three screws. Holes need not be cut in plaster. Weight of diffuser is supported by ceiling framework instead of by the duct. Unit is made of steel and is in sizes required to flush mount all of the company's ceiling diffusers.

### Adjustable Takeoff Fitting

"CLIX-ON" adjustable top or side takeoff designed for permanent connection with air-tight corners — *Standard Furnace Supply Co., Ltd., Dept. AA, 714 S. 72nd*



*St., Omaha, Nebr.* Features listed by the company are positive attachment, improved air handling characteristics and adjustability which permits reduction of

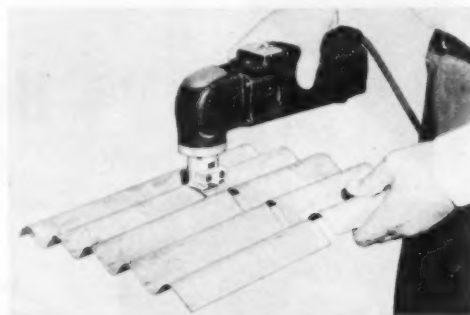
inventories by eliminating need for carrying duplicate stocks. Sample fitting for personal demonstration will be supplied to dealers on request through specified wholesaler.

### Counterflow Furnace

COUNTERFLOW FURNACE models in five sizes from 80,000 to 160,000 Btu input — *Rheem Mfg. Co., Dept. AA, 7600 S. Kedzie Ave., Chicago 29.* Unit conserves about 13 in. of vertical space over previous counterflow models. Heat exchangers have been redesigned to improve efficiency, the manufacturer reports. Featured in the new units are milled slot burners, cross-slot ignition from single pilot light and heavy duty blower, and built-in vent with draft diverter.

### Portable Corrugated Sheet Nibbler

PORTABLE NIBBLER for cutting 16 ga corrugated sheet metal and small diameter duct without distorting or flattening curves — *Fenway Machine Co., Dept. AA, Edgemont and Clementine St., Philadelphia 34.* Spe-



cial nose piece and die holder is set at right angles to the body to facilitate handling. Diagonal cuts across curves as well as making circles 2 in. in diameter and larger on corrugated sheets. Unit weighs 7½ lb, is 10 in. overall; it has a ½ hp motor, ball bearing construction, and operates from 110-v a-c or d-c single phase with 33 in. of cutting per minute of 16 ga metal, the company states.

### Cut-to-Fit Filter for Window Units

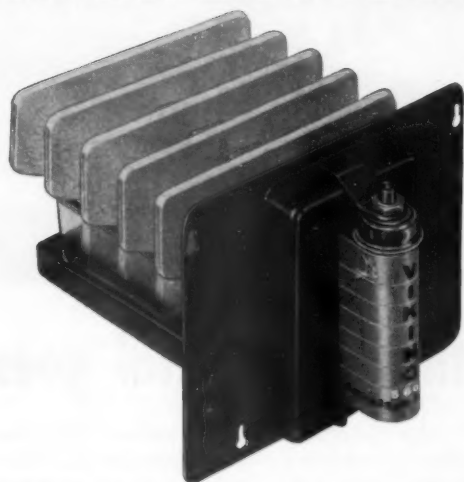
"SNIP-IT" FILTER which can be cut to fit all types of window cooling units — *C.L.B. Co., Dept. AA, 4000 Gulf Freeway, Houston, Tex.* Made of natural vegetable material, treated and bonded to form pad of required density, unit has rigid frame which eliminates need for supporting device. Filter can be cut to fit with scissors or knife from original size of 15 × 24 in. Thirty-six filters are contained in carton; each is packaged in large polyethylene bag which can be retained for household use. No oil or sticky sub-

(Continued on page 132)





# **king** **AquaMagic** **HUMIDIFIERS**



Still the world's only humidifier with a guaranteed leakproof glass pan that eliminates irritating call-backs caused by old-fashioned pans. Now, with ten feet of new corrosion-proof polyethylene tubing, for trouble-free installation without tools. Installation is easy even in the smallest plenums.

## Mr. Heating Dealer:

**Thanks for Making The Viking AquaMagic America's Fastest Selling Humidifier!**

To help you make even greater sales during the 1956-57 Humidifier Season, we're offering you this new expanded "profit program".

**Free Merchandise . . .** We're renewing our now famous "Humidifier Deal" of 1955 to give you the same generous profit picture you preferred in 1955.

**Free Promotion Kit . . .** To help you generate action among your employees and customers, we're providing bumper strips, window streamers, furnace signs, door signs, newspaper ad mats, radio commercials and publicity releases for your use.

**Bermuda Vacation Contest . . .** Everyone has a chance to win regardless of size or volume. An exciting vacation of swimming, sightseeing, golf, tennis and relaxation at the luxurious Castle Harbor Hotel in beautiful Bermuda. Your promotion idea can make you a winner.

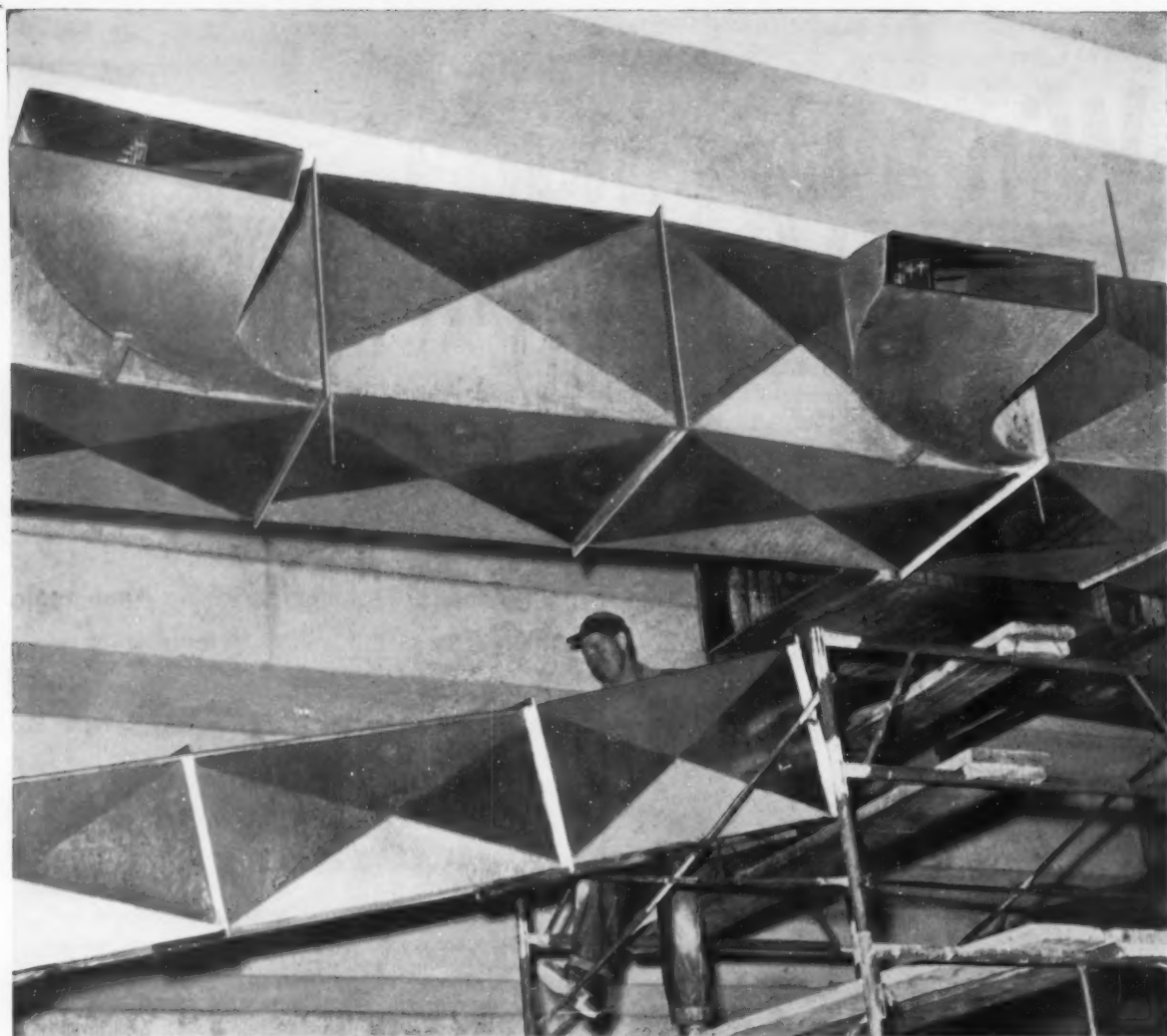
## Your Viking Distributor has Entry Blanks and Details

He'll give you the complete details on "Viking's 1956 Humidifier Deal". He'll see that you get your "Free Promotion Kit" and "Bermuda Contest Instructions." He can help you create Humidifier sales volume you never dreamed of.

**Act Today . . . "Bermuda Contest" closes Midnight Dec. 31, 1956!**



**Other Dependable Viking Products**  
 Window Fans • Attic Fans  
 Blower Packages  
 Blower Assemblies



## This coating goes wherever the base metal goes

You can put Bethcon galvanized steel sheets through the toughest kind of forming without flaking or peeling of the zinc coating. Snap locks, Pittsburgh locks, or your own special seams—they're all the same to a Bethcon sheet!

That's because Bethcon is galvanized in Bethlehem's continuous lines, which bond the zinc more tightly to the base metal than conventional hot-dipping processes. With a Bethcon sheet, you'll find that the coating goes wherever the base metal goes and comes out just as sound as it started.

There's another advantage in Bethcon, too: the improved appearance and sales appeal of the finished product. Bethlehem's continuous galvanizing process imparts brighter, more uniform spangles to the

sheet. It also distributes the zinc more evenly over the surface, eliminating those heavy beads which you so often find on the drip end of conventional galvanized sheets.

You can specify Bethcon in cut lengths or coils, 16-gage or lighter. You can also choose between plain carbon steel and corrosion-resisting Beth-Cu-Loy (copper-bearing steel) for the base metal, depending on the requirements. If you would like more details about Bethcon, our nearest district office will be glad to make them available.

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

# BETHLEHEM STEEL



**Specified**  
by leading manufacturers

the



## **Solenoid Gas Valve**

*Higher Capacity*



The Crise Solenoid Gas Valve has been designed to combine performance, ruggedness and simplicity for long, trouble-free service on all types of gas fired heating equipment. A soft seat is accurately centered by an improved design to assure positive shut-off and quiet operation. Corrosion-resistant parts make the Crise SV 100 and SV 110 suitable for use with all types of gases. Available in  $\frac{1}{2}$ " and  $\frac{3}{4}$ " sizes, 24 V or 115 V and with or without a manual opener. Write for bulletin.

**ACRO**  
MANUFACTURING COMPANY

CONTROLS DIVISION

COLUMBUS 16, OHIO

### **A Host of Features**

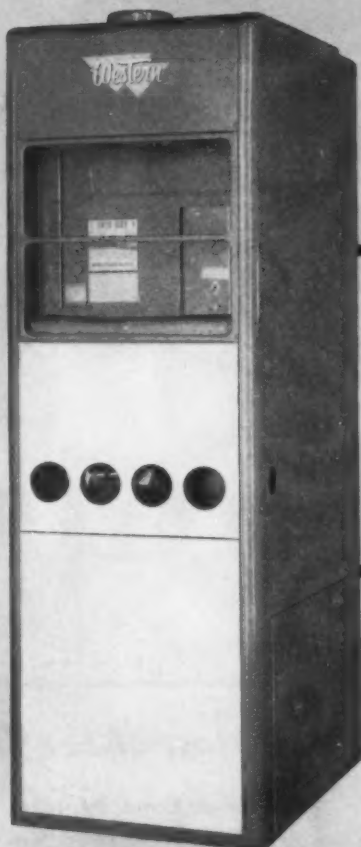
- High Capacity
- Soft Seat Construction
- Quiet Operation
- Streamlined Design
- Positive Shut-off
- Corrosion Resistant
- Suitable For All Gases



## Your key to winter heating

Install the new CAD  
AIR CONDITIONER  
FURNACE and inex-  
pensive EVAPORATOR  
CABINET now.

Add evaporator and condensing unit now, or later. It's a complete, flexible heating-cooling package — designed to give you and your customers true air conditioning performance at a truly sensible price. 16 models — 60,000 to 120,000 B.t.u. input — 1000 to 2200 CFM. Upflow furnace shown — also available in counterflow models.



WESTERN and ATLAS are brand names for heating and air conditioning equipment manufactured exclusively by International Sales Company — pioneers of forced air heating. Since 1908.

**Western**  
FURNACES  
AIR CONDITIONERS

**FIRST IN  
FORCED  
AIR**

**INTERNATIONAL  
SALES COMPANY  
MANUFACTURERS**

San Francisco 24,  
California

**ATLAS**  
FURNACES  
AIR CONDITIONERS

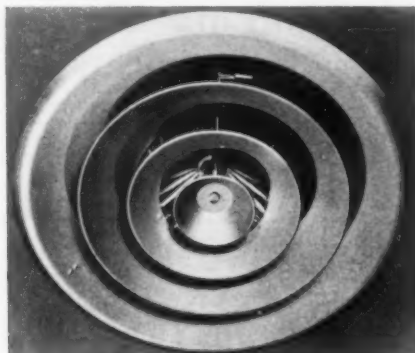
## equipment developments

(Continued)

stance are used — bonding substance is said to provide electrostatic filtering action.

### Center Induction Ceiling Diffuser

MODEL CM-1-100 round ceiling air diffuser unit in four sizes featuring center induction and radial distribution — *Anemostat Corp. of America, Dept. AA,*



10 E. 39th St., New York 16. Unit is said to induce approximately 100 cfm of room air through the center of the diffuser for every 100 cfm of primary air brought in. Unit discharges air outward along ceiling in layers, creating uniform air flow throughout the room, the company states; supply air is mixed gradually with room air with minimum draft.

### Ventilating Hood

VENTILATING HOODS in variety of sizes, finishes and colors — *Trade-Wind Motorfans, Inc., Dept. AA, 7755 Paramount Blvd., Rivera, Calif.* Unit includes four units: 1) hood, in 30, 36, 39, 42 and 48 in. lengths and variety of colors and finishes; 2) axial flow 30 cfm ventilator unit which removes smoke, heat and fumes to the outside under pressure; 3) a 9 in. filter grille which takes grease from air being exhausted and can be cleaned with soap and water; 4) under-hood light with single switch that operates both light and ventilator so they can be turned on simultaneously or separately.

### Truck Bodies

MODEL UB SERVICE BODY for trucks, featuring 15 in. compartments with shelves and trays to hold tools and 4 ft wide bed with die formed, heavy duty plate floor — *Utility Body Co., Dept. AA, 1530 Wood St., Oakland, Calif.* Double panel doors are hinged to the body on free-moving bearings. Flush, pull-out door handles with slam-action catches and master keyed cylinder locks are used throughout. Edges are rolled for added safety. All steel body is electrically welded;



## equipment developments

(Continued)

exterior surface is acid-etched and primed with rust-resistant primer; body is undercoated. Optional equipment includes side or overhead ladder racks, telescopic steel cover with end gate enclosure, safety tread step on rear bumper.

### Portable Electric Saw

PORTABLE ELECTRIC saw with connection for commercial vacuum cleaner hose to remove dust created by cutting plaster, wooden baseboard and other dust sources — *Wodack Electric Tool Corp., Dept. AA, 4627 W. Huron St., Chicago 44.* Unit consists of: case which houses universal a-c or d-c motor; one  $6 \times \frac{1}{4}$



$\times \frac{1}{2}$  in. abrasive wheel with guard and support handle and guard nozzle for attaching vacuum hose; trigger switch and 15 ft cord with plug-in for any outlet. The 6 in. abrasive cutting wheel makes single cut up to  $1\frac{3}{4}$  in. deep through plaster, lath, brick or concrete. Tool is 18 in. long, weighs 16 lb.

### Expansion Bolt Shells

"BULLDOG TWO-IN-ONE" series 200 flush type expansion shell in seven standard bolt sizes from  $\frac{1}{4}$  to  $\frac{7}{8}$  in. — *J. D. Polis Mfg. Co., Dept. AA, 2900-20 W. 26th St., Chicago 23.* Shells are combination masonry drill and concrete anchor which can be installed with air or electric hammer; they are used for anchoring heating and cooling ducts, fixtures and machinery in concrete and masonry.

### Shaded Pole Motors

FOUR POLE, shaded pole motors rated from  $\frac{1}{25}$  to  $\frac{1}{10}$  hp, designed for unit heaters, residential cooling units and fans — *Fasco Industries, Inc., Dept. AA, Box 509, Rochester 2, N.Y.* Wound-in-place coil design is said to improve copper efficiency and eliminate magnetic wedges. Sintered oilless bearings and oil-retaining wicks are featured. Speed torque characteristics are designed for multi-speed operation. Units are available for single, two or three speed operation.



## ... and Summer cooling



### NEW 2 AND 3 H. P. CONDENSING UNITS

Designed and engineered for operation with CAD Air Conditioner Furnaces. Air or water cooled. Standard and de-luxe models. Modern steel cabinets.



### NEW 2 AND 3-TON EVAPORATOR ASSEMBLIES

Cabinets match CAD Air Conditioner Furnaces. Upflow, counterflow and horizontal flow evaporators. Cabinets available separately for installation in duct now, insertion of evaporator later.



### PRE-CHARGED TUBING WITH BREAKAWAY VALVES

Available in 25 or 50-foot lengths, pre-charged with Freon-22. Safe, positive hookup of condenser and evaporator — no field-soldered connections necessary.

Send for your free copy of WESTERN or ATLAS 1956 Condensed Catalog. Detailed specifications and installation data for more than 100 models and sizes of gas and oil-fired heating equipment, and air conditioning.

**Western**

**FIRST IN FORCED AIR**

**ATLAS**

INTERNATIONAL SALES CO. • MFGRS.  
2045 Evans Ave., San Francisco 24, Calif.

Please send me your new ATLAS \_\_\_\_\_ WESTERN \_\_\_\_\_  
1956 Condensed Catalog: (check one)

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

**FREE!**





## No need to keep your fingers crossed if you installed ULTRALITE\* Duct Liner

... because ULTRALITE glass fiber insulation effectively silences duct noises that can lead to customer complaints. It takes very little time, costs very little money, to line the plenum and the supply ducts with ULTRALITE, yet this simple procedure is one of your best guarantees of customer satisfaction.

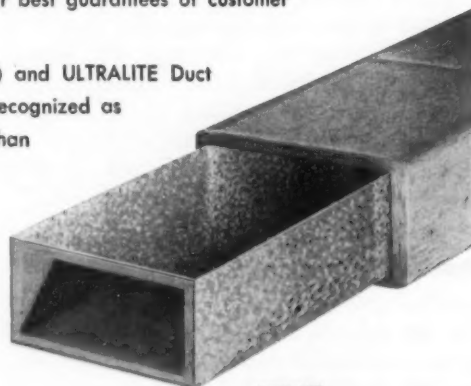
ULTRALITE Duct Liner (an acoustical insulation for lining ducts) and ULTRALITE Duct Insulation (a thermal insulation for the exterior) are generally recognized as the best duct insulations available because they are stronger than others, cost less to apply and provide top thermal and acoustical efficiency. Write today for your free copy of 12-page "How-to-do-it" brochure. Or, for samples, information and speedy delivery from local stocks—

CALL YOUR LOCAL DISTRIBUTOR (LISTED IN ADJOINING COLUMN) TODAY.

**GUSTIN-BACON** *Manufacturing Company* 

Thermal and acoustical glass fiber insulations • Pipe couplings and fittings • Molded glass fiber pipe insulation  
226 W. 10th ST., KANSAS CITY, MO.

See Adjoining Column for Local Ultralite Distributor →





## G-B ULTRALITE DISTRIBUTORS

(See ad on facing page)

ALBUQUERQUE, Mt. States Insulation Co.  
 AMARILLO, Ball Distributing & Engr. Co.  
 APPLETON, J. D. Wilson Co.  
 BILLINGS, Mont., L. W. Worthington  
 BIRMINGHAM, Ala., Shook & Fletcher Supply  
 Southern States Iron Roofing Co.  
 BROOKLINE, Mass., Homans-Kohler, Inc.  
 BUFFALO, Frontier Insulation & Supply Co.  
 CHARLESTON, W. Va., Baldwin Asbestos Products Co.  
 CHARLESTON HEIGHTS, S. C., Stafford Insulation Co.  
 CHICAGO, E. C. Carlson Co.  
 CINCINNATI, R. E. Kramig & Co.  
 CLEVELAND, The Miles Materials Co.  
 COLUMBIA, S. C., Southern States Iron Roofing Co.  
 COLUMBUS, Sauter Brothers  
 DALLAS, Insulation Supply Co., Inc.  
 Payne-Ladewig, Inc.  
 DAVENPORT, Republic Electric Co.  
 DENVER, Gene Wright Lumber Co.  
 DETROIT, Coon-DeVisser Co.  
 EL PASO, Insulation & Specialties Co.  
 FARGO, N. D., Smith, Inc.  
 FT. SMITH, Ark., Gunn Distributing Co.  
 FT. WAYNE, Ind., M. H. Hilt, Inc.  
 FT. WORTH, The Bracken Co.  
 GREENSBORO, N. C., Starr Davis Co., Inc.  
 HOUSTON, Precision Insulation Co.  
 INDIANAPOLIS, Central Supply Co.  
 IRON MOUNTAIN, Mich., Champion, Inc.  
 JACKSON, Miss., Machinery Sales & Service Co., Inc.  
 JACKSONVILLE, Fla., Ferber Sheet Metal Works, Inc.  
 JOPLIN, Mo., Joplin Cement Co.  
 KANSAS CITY, Kelley Asbestos Co.  
 LITTLE ROCK, Gunn Distributing Co.  
 LOS ANGELES, Western Fibrous Glass Products  
 Plant Insulation Co.  
 LOUISVILLE, General Insulation & Roofing Co.  
 MADISON, Wis., J. D. Wilson Co.  
 MEMPHIS, John A. Denie's Sons Co.  
 MIAMI, Southern States Iron Roofing Co.  
 MILWAUKEE, J. D. Wilson Co.  
 NASHVILLE, Southern States Iron Roofing Co.  
 NEW HAVEN, Conn., Insulation Supply Co.  
 NEW ORLEANS, Eagle Asbestos & Packing  
 NEW YORK, Eastern Steam Specialty Co.  
 OKLAHOMA CITY, Ball Distributing & Engineering Co.  
 OMAHA, Cardinal Supply & Mfg. Co.  
 PHILADELPHIA, John F. Scanlan, Inc.  
 PITTSBURGH, D. J. Kennedy Co.  
 PHOENIX, Ariz., Kircher Asbestos & Rubber Co.  
 RALEIGH, N. C., Southern States Iron Roofing Co.  
 RICHMOND, Va., Southern States Iron Roofing Co.  
 ROCKFORD, Ill., Mott Brothers Co.  
 SALT LAKE CITY, Bullough Asbestos Supply Co.  
 SAN ANTONIO, The Bracken Co.  
 SAN DIEGO, Western Fibrous Glass Products  
 SAN FRANCISCO, Western Fibrous Glass Products  
 SAVANNAH, Ga., Southern States Iron Roofing  
 SCHENECTADY, N. Y., Jon Tree Sales & Supply Co.  
 SEATTLE, Western Fibrous Glass Products  
 ST. LOUIS, A. G. Brauer Supply Co.  
 ST. PAUL, Asbestos Products, Inc.  
 SYRACUSE, N. Y., Industrial Supply Co.  
 TAMPA, Fla., Eagle Roofing & Art Metal Works, Inc.  
 TALLAHASSEE, Fla., Capital Refrigeration & Supply  
 TULSA, Okla., Ball Distributing & Engr. Co.  
 WASHINGTON, Walter E. Campbell Co., Inc.  
 WICHITA, General Metals, Inc.  
 VANCOUVER, B. C., Fleck Brothers Limited

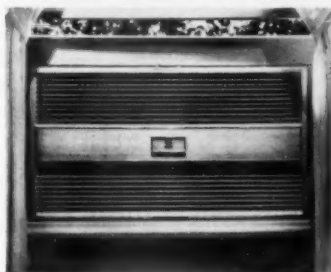


## equipment developments

(Continued)

### Window, Console Units

FOUR LINES of room cooling units including three models for window installation and a console model — Carrier Corp., Dept. AA, 300 S. Geddes St., Syracuse 1, N.Y. Win-



dow models include "Starline" series in 3/4, 1 and 1 1/2 hp sizes; "Crestline" in same sizes with added features; and "Super Crestline" units said to reduce electrical requirements at full rated capacity. Featured are flush grilles and lateral deflection adjustment; paddle-wheel controls; modulated control of temperature and humidity; automatic controls for ventilation and exhausting.

### Water Heater

"ALLUMATIC" gas-fired water heater with aluminum tank — Hotstream Heater Co., Dept. AA, 2363 E. 69th St., Cleveland 4. Features include a plastic drip tube, drain valve with threaded hose connection and aluminumized steel flue liner. Combination thermocouple, automatic pilot and thermostat control is said to shut off all gas to the burner in the event of pilot failure. Heater carries a ten year warranty.

### Truck Lift Gate

LIGHT WEIGHT lift gate for trucks handling light but bulky loads — Anthony Co., Dept. AA-1002, Stretator, Ill. Gate has loading area of 82 X 30 in. and capacity of 1000 lb. Single hydraulic cylinder is powered by battery driven pump or power takeoff and pump combination. Loading and unloading can be done from side; one lever controls

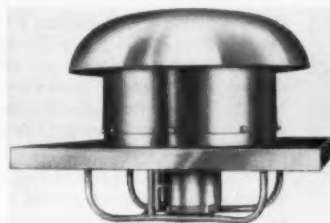
lifting and lowering operations from either side of truck. Gate stops at ground and truck floor levels or can be stopped at intermediate heights.

### Soldering Torch

"MULTI-TORCH CHEST" combination of LP torch tools in metal chest — Turner Brass Works, Dept. AA, 821 Park Ave., Sycamore, Ill. Kit contains one regular torch, one heavy duty burner, one chisel soldering tip, one flame spreader and a metal case. According to the manufacturer, the chest contains enough burner tips to meet every torch application.

### Power Roof Exhauster

LOW SILHOUETTE power roof exhauster with overall height of less than 18 in. — Chicago Blower Corp., Dept. AA, 9867 Pacific Ave., Franklin Park, Ill. Said to be light-proof and weather tight, mushroom shaped unit can be used for intake as well



as for exhaust. Aerodynamically designed guide vanes in head and airfoil-shaped fan blades are designed for greater air movement with less noise, the company states. Base is die-formed in one piece and welded at corners; venturi throat in base cuts air turbulence. Construction is aluminum, stainless steel or heavy gage steel. Units exhaust 350 to 34,430 cfm of fumes, smoke and dust; blade diameters range from 9 to 48 in. Entire head and sleeve lift off for service access to wheel and ball bearing type motor.

### Brazing Alloys

FOUR HIGH nickel content brazing alloys for high temperature and corrosion resistant service — Handy & Harman, Dept. AA, 82 Fulton St., New York 38. Alloys are designed

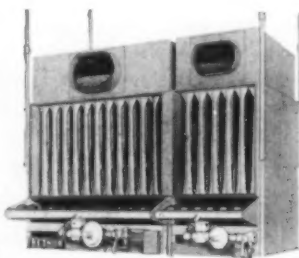


**"I like to work with Reznor duct furnaces,  
because they let me give my customers  
exactly what they want and need"**

"There's no getting around it; selling anything is a lot easier when the product is exactly right. That's why I like Reznor duct furnaces. With one of the Reznor duct furnaces as a starting point, I can offer each one of my customers the heating or heating-cooling system which is exactly right for his building and his needs.

"There are duct furnaces in the Reznor line for system capacities from 50,000 to several million BTU. All are simply compact, efficient gas-fired heat exchangers with a full complement of combustion controls. I can take any one of them and add whatever I feel is necessary in the way of equipment for air moving, cooling, filtering, and humidifying. My hands aren't tied because some manufacturer has put together a complete package which can't be exactly right for any job because it has to be good enough for many different jobs.

"Satisfied customers are my best salesmen. So whenever I complete an installation designed around a Reznor duct furnace, it's just like adding a star salesman to the payroll. I know it will win friends for me, because the Reznor duct furnace gave me the freedom to tailor the system to exact job requirements."



It's the same story wherever you go. Reznor duct furnaces are winning friends among contractors and their customers because they pave the way for truly ideal heating and heating-cooling installations. For the complete story, see your nearby Reznor distributor. He's listed under "Heaters-Unit" in the yellow pages of your telephone directory.



# **REZNOR**

**THE WORLD'S LARGEST-SELLING  
GAS UNIT**

# **HEATERS**

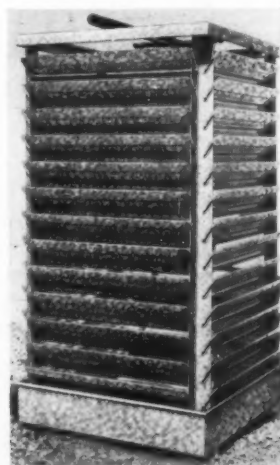
**REZNOR MANUFACTURING COMPANY**  
6 Union Street, Mercer, Pa.

## **equipment developments** (Continued)

especially for brazing austenitic stainless steel, high nickel, heat resistant and precipitation-hardening alloys; they will also braze carbon steel and non-ferrous metals with melting points above 1850 F. Alloys are self-fluxing when used in controlled atmosphere; properly designed joints will have tensile strengths of 75,000 to 95,000 psi depending on atmosphere used, joint clearance and composition of brazing alloy, the company reports. Amount of alloying with parent metal can be controlled by adjusting amount of brazing alloy used, brazing temperatures and length of heating cycle. Flow points are 1825 to 1925 F.

### **Steel Cooling Tower**

SERIES K natural draft cooling tower made of steel and designed to be installed in 20 minutes — *Dover Mfg. Co., Dept. AA, Box 498, Independence, Mo.* Bolt-free tower is held



together with adjustable tie rod extending from header pipe down to center of basin. Galvanized louvers are slipped into slots in corner posts. Featured, in addition to metal construction for adherence to fire codes, are one-piece basin, crown, corner posts and pre-formed louvers which are hot dip galvanized. Unit is in capacities of 3 to 100 tons, the company reports.



# HOW TO CHOOSE A GAS VENT....

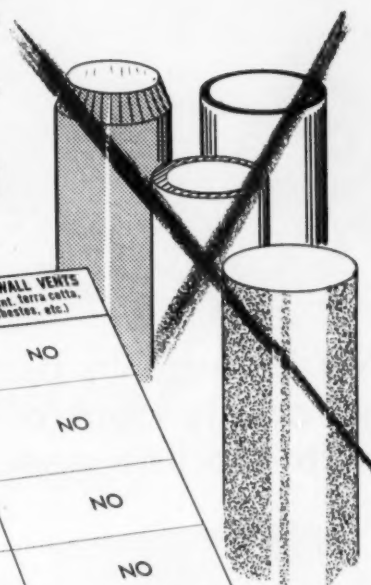


It's easy to select the proper vent for your gas-burning appliances—if you know what features to look for. Use this check-chart to help you pick the right gas vent for your installations.

**AND WE KNOW YOUR CHOICE WILL BE AMERIVENT!**

You'll be glad you selected AMERIVENT when you find how easily it installs and how quickly it solves all your gas venting problems.

Remember... it's the famous "pipe-within-a-pipe."



DESIRABLE GAS FLUE FEATURES	AMERIVENT	SINGLE-WALL VENTS (cement, terra cotta, asbestos, etc.)
Outer pipe stays cool, eliminates fire hazards.	YES	NO
Inner pipe heats quickly, prevents condensation and vent failure.	YES	NO
SNAP-LOCK joint speeds installation, reduces costs.	YES	NO
Light weight eliminates handling problems.	YES	NO
Resilient construction stops pipe breakage and leakage.	YES	NO
Low clearance from combustibles.	YES	NO
Resists disintegration caused by thermal shocks and stresses.	YES	NO



**Ask for AMERIVENT...**  
at plumbing and heating wholesalers  
... everywhere.



**AMERIVENT, Inc.**

1080 KENTUCKY STREET  
MEMPHIS 6, TENNESSEE

**AMERICAN METAL  
PRODUCTS CO., Inc.**  
2911 COMPTON AVE.  
LOS ANGELES 11, CALIF.

*Now!* 5-10 minute conversion  
to other gases



No change in burner ...  
no costly control alterations  
with Modine gas unit heaters



Get your copy of this bulletin on Modine Gas  
Unit Heaters. Tear out coupon and mail today.

ONLY the new Modines provide this important versatility. Inexpensive conversion kit with easy-to-follow instructions now permits quick conversion from natural to LP, LP-air, or mixed gas. Units installed to burn other than natural gas can be easily converted when natural gas becomes available.

And because a single Modine unit can be converted to burn any of these gases, your jobber can always supply your need without waiting for shipments from the factory. Whatever your gas requirement, Modine jobber stocks are always in balance — thanks to quick and inexpensive conversion.

Get full details on all the other outstanding Modine features. Call the Modine representative listed in your classified phone book.

**Modine**  
GAS UNIT  
HEATERS

MODINE MFG. COMPANY  
1580 DeKoven Ave., Racine Wis.  
Please send me free Bulletin 656.

NAME .....  
FIRM .....  
ADDRESS .....  
CITY ..... ZONE ..... STATE .....  
GU-1337

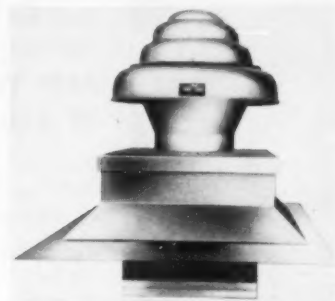


## equipment developments

(Continued)

### Roof Ventilator Unit

"SONOTROL CURB" roof ventilator unit designed to reduce noise at source where buildup is developed — Penn Ventilator Co., Engineering Dept. AA, Goodman Ave., Philadelphia 40. Sound insulated curb helps blanket and absorb noise which



bounces off concrete, metal or wood. Unit has acoustical surface directly below fan; "sinuous" design was developed to eliminate resonance, echoing and reverberation of flat, hard surfaces.

### Window Cooling Units

SEVEN SERIES containing 31 window air conditioning models featuring units for 115-v household current and for narrow windows — Mitchell Mfg. Co., Div., Cory Corp., Dept. AA, 3200 W. Peterson Ave., Chicago. "Roto Cone" feature — a self-propelled rotor which creates a sweep cooling effect for faster cooling — is featured in the line. Units are in ¾, 1, 1½ and 2 hp models, are designed to reduce noise factor. Largest model is for multi-room cooling.

### Baseboard Diffusers

SERIES 72 LINE of extended baseboard diffusers for cooling systems — Lima Register Co., Dept. AA, 651 N. Baxter St., Lima, O. Two ft size has 26.6 sq in. free area; four ft size has double capacity. Increased free area is said to improve power for throwing heavy cooled air upward 4 to 5 ft above floor. For store and office application, units can be connected in multiples.

# ***Here Now! NEW CHEVROLET TASK-FORCE 57 TRUCKS!***



## ***FIRST with the MOST modern features***

*They're out to save you hours and dollars on any hauling job...and they've got big new power plus the modern features that make it a sure thing! They put you way ahead with time- and work-saving advantages you won't find in any other truck!*

Again, for 1957, Chevrolet light-duty trucks bring you the industry's most advanced features—new developments that have already been proved in a history-making preannouncement test run! (See how they conquered the Alcan Highway, below.)

For '57 there's bold new styling to match Chevy's remarkable stamina and dependability.

There's fleet-action power in Chevy's outstanding engine line-up for '57—with a modern version of the famous 140-h.p. Thriftmaster 6 standard in Series 3000 trucks and the efficient pound-saving short-stroke Trademaster V8 available as an extra-cost option.

Other way-ahead '57 features include advanced Ball-Gear steering, high-output 12-volt electrical system, modern tubeless tires and great optional (extra cost) features such as no-shift Hydra-Matic transmission!

Be sure to check the new cab features, too... the handsome new upholstery, the new steering wheel, the new exterior colors. Your Chevy dealer has all the details, so see him soon!... Chevrolet Division of General Motors, Detroit 2, Michigan.

### ***Alcan Highway Test Run Proves Chevrolet Ruggedness!***



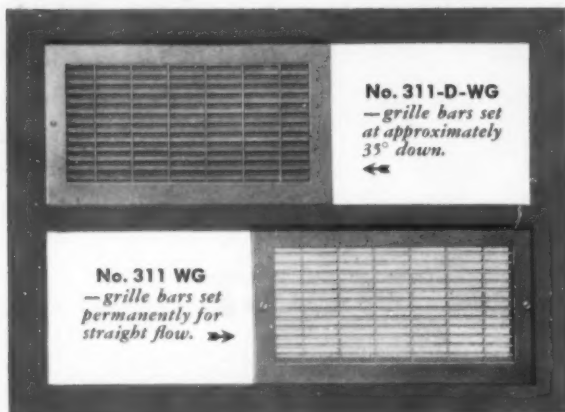
In an AAA-certified endurance run, 6 light, medium and heavy-duty trucks carrying typical cargoes roared up the 1,520-mile Alcan Highway (normally a 72-hour run) in less than 45 hours! In dramatic fashion, new Chevy trucks conquered one of the world's most challenging roads to display the great performance qualities they'll bring to *your* roads!



# Independent

## "*Fabrikated*" WALL GRILLES

### for Commercial Installations



1. Vertical or horizontal bars strengthened by interlocking cross bars; no vibration.
2. Tamper-proof. Changes in air distribution cannot be made by unauthorized persons.
3. Mesh ( $\frac{3}{8} \times 1\frac{1}{16}$ ) filters 78% of free area yet darkens the duct and reduces highlights from back of the grille.
4. 14 gauge steel solid bars  $\frac{1}{2}$ " deep—strong enough to be "kick-proof"—a must for schools.



5. All bars made from round edge stock. No sharp edges. (A must for schools.)
6. The only grille for taking abuse in school gyms and hospital psychopathic wards.
7. Made in several large and small sizes.

*Always Leading—Always Progressing*

**THE INDEPENDENT  
REGISTER CO.**

3747 E. 93rd STREET • CLEVELAND, OHIO

## new literature . . .

### Moisture in Crawl Space Homes

MOISTURE PROBLEMS in crawl space houses are discussed in a six page pamphlet written by G. A. Voorhees, technical secretary, application, National Warm Air Heating and Air Conditioning Association. The bulletin is illustrated throughout with drawings and photographs showing what conditions can cause moisture problems and what can be done to prevent moisture from getting into the house. Mr. Voorhees concludes his discussion with the recommendation that a proper vapor barrier be used in every house where the foundation vents are closed in the winter and the crawl space is heated. He points out that many heating dealers, for the protection of their own reputations are doing one of two things: 1) They are insisting that when the crawl space is to be heated, the owner or builder prepare the crawl space properly and in strict accordance with the recommendations in NWA-HACA Manual 4; or 2) They are including the cost of supplying and laying the vapor barrier as a part of the heating contract, so that they can be sure it is of the proper type and is correctly installed as recommended by the association—*National Warm Air Heating and Air Conditioning Association, Dept. AA, 640 Engineers Bldg., Cleveland 14.*

### Heat Anticipating Thermostat

CIRCULAR describes "Fashion" heat anticipating thermostat featuring a hinged cover and adobe beige finish designed to harmonize with a variety of color schemes. Also available is a data sheet giving specifications and describing principles of operation. Installation instructions are included as well as tips on adjustment and servicing—*White-Rodgers Co., Dept. AA, 1209 Cass Ave., St. Louis 6, Mo.*

### Warm Air Fittings

CATALOG No. LMPC-56 (20 pages) gives prices and specifications for warm air fittings, rain carrying equipment and sheet metal supplies. Line drawings illustrate details of construction—*Labeled Metal Products Corp., Dept. AA, 2000 W. Cermak Rd., Broadview, Ill.*

### Plastic Duct and Hoods

CATALOG contains information on "Van-Cor" unplasticized polyvinyl chloride hoods, ducts, tanks and tank linings as well as pipe for draining tanks. Included are chemical resistance tables, flow rate charts, and assembly and installation data—*Colonial Plastics Mfg. Co., Dept. AA, 2685 E. 79th St., Cleveland 4.*





## NOW! FAST DELIVERY FROM NEW PEERLESS PLANT

● Doubled manufacturing and warehouse space permits Peerless to warehouse twice as many fans and blowers and increase our number of models from 250 to more than 400. Now, when you need the equipment for a complete air moving job, you can come to just one source — Peerless — and get prompt delivery on everything you need.

The big Peerless line is completely designed, engineered and manufactured under one roof. When you require special motors, our motor division produces them. We have complete control of all components going into every fan and blower. As a result, we can put our unqualified mechanical and performance guarantees on every unit leaving our plant.

Peerless builds to all industry standards — both PFMA, NAFM and NEMA. If you require construc-

tion to meet other codes — either special industry or government — Peerless can do the job.

Engineering is the backbone of Peerless progress. With our new facilities, it will push our standards to an even higher level. Whether your installation problem is routine or complex, we'll work with you to solve it most efficiently.

The best way to start any air moving job is to consult the Peerless Fan and Blower Bulletins. SDA-160 gives complete data on fans and forward curve blowers. SDA-200 completely catalogs Peerless backward curve blowers. Put them in your file today. If you don't have them, write to us. We'll send them by return mail.

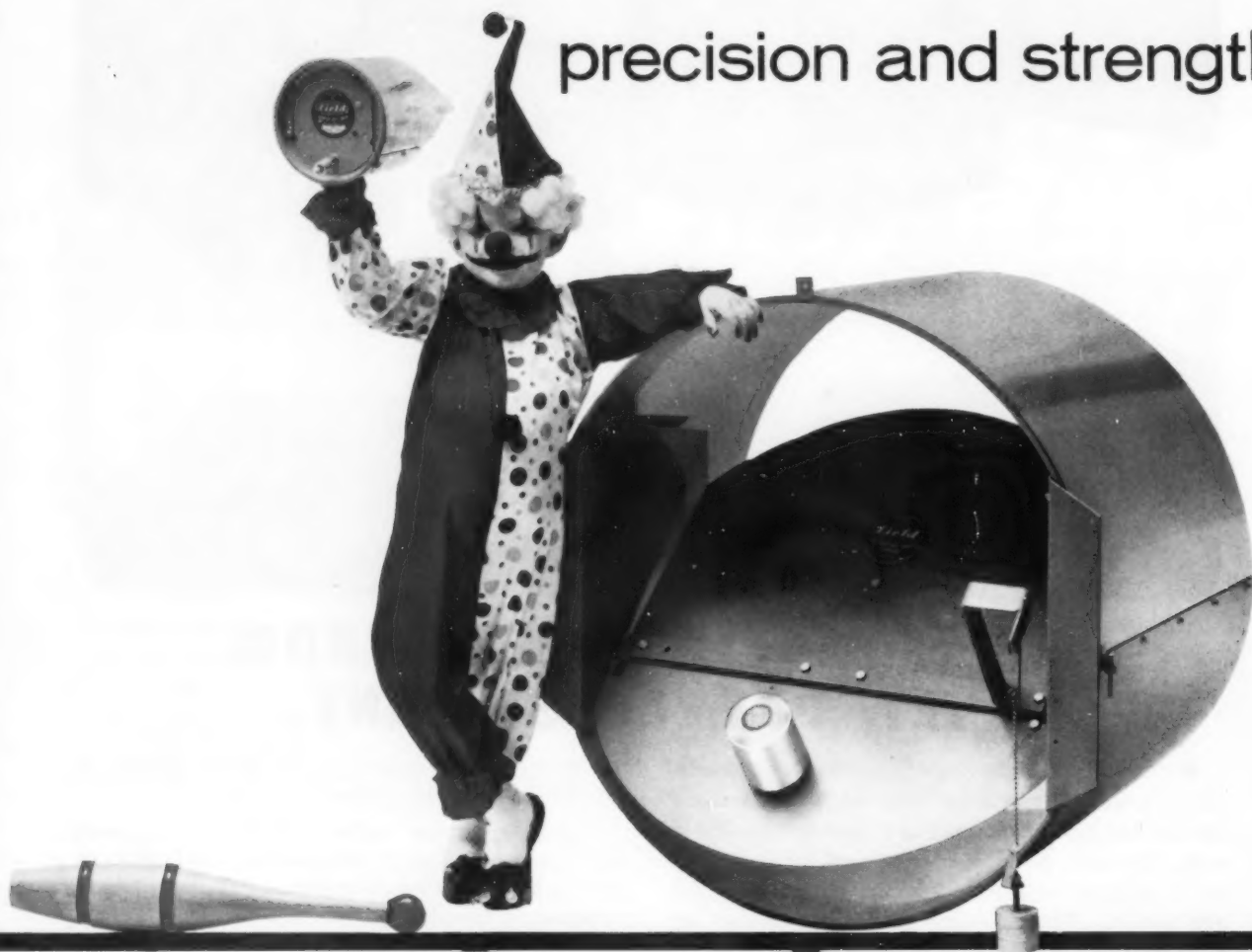
FAN AND BLOWER DIVISION

**THE *Peerless Electric*® COMPANY**

FANS • BLOWERS • ELECTRIC MOTORS • ELECTRONIC EQUIPMENT  
1405 W. MARKET ST., WARREN, OHIO

# midget or GIANT

Field draft controls  
provide both  
precision and strength



**FIELD CONTROL DIVISION**  
of H. D. Conkey & Company, Mendota, Ill.

**AFFILIATES:**  
Conco Building Products, Inc. • Brick, Tile, Stone  
Conco Materials Handling Div. • Cranes, Hoists

Represented in Canada by Ontor Limited,  
12 Leswyn Road Toronto 10, Ont., Canada

**field**



**SIZES**  
**6" THRU 32"**

Field "M" Controls  
for oil and coal fired  
domestic, commercial  
and industrial heating plants



**SIZES**  
**8" THRU 32"**

Field "MG" Double-  
Acting Controls for gas  
fired commercial and  
industrial heating plants



**SIZES**  
**6" THRU 9"**

Field "RC" Con-  
trols for domestic oil and  
coal fired heating plants, for  
flue sizes 5" through 10"

## new literature

(Continued)

### Oil Burners

BULLETIN presents data on 10 models of oil burners for residential and commercial heating. Specifications, capacities, dimensions and shipping weights are given—*The Carlin Co., Dept. AA, 912 Silas Deane Highway, Wethersfield 9, Conn.*

### Working with Stainless Steel

POINTS TO BE CONSIDERED in the fabrication of stainless steel are presented in the booklet, "Stainless Fabricating Tips." Recommendations listed include using more power, keeping contact parts smooth, protecting polished sheets, keeping blades sharp, washing off soldering flux, and using stainless steel fasteners—*Armco Steel Corp., Product Information Service, Dept. AA, Middletown, O.*

### Centrifugal Fans

BULLETIN No. 4824 describes "Airfoil" centrifugal fans for heavy duty industrial applications. Discussions of performance features and construction details are supplemented with photos and drawings of wheel, housing, bearings, shaft, bearing supports and inlet screens. Several possible volume control methods that

can be used with the fans are described and evaluated—*American Blower Corp., Dept. AA, Detroit 32.*

### Gas Control

MODEL 55 GAS CONTROL is described in an illustrated presentation book designed for the use of sales engineers. Included is information covering operating characteristics, dimensions, methods of production and design advantages—*A-P Controls Div., Controls Co. of America, Dept. AA, 2450 N. 32nd St., Milwaukee.*

### Gas Conversion Burners

IMPINGED JET gas conversion burners are described in a four page, illustrated bulletin. Specifications, dimensions and approximate shipping weights are included—*The Barber Mfg. Co., Gas and Oil Burner Div., Dept. AA, 1052 E. 134th St., Cleveland 10.*

### Air Turning Vanes for Duct Corners

CATALOG F 7912 covers "Uni-Flo Airturn" air turning vanes for use in square duct corners. Performance data is included to help engineers determine elbow pressure losses throughout the air distribution system. Also included is sizing and ordering information—*Barber-Colman Co., Dept. 766-AA, 1101 Rock St., Rockford, Ill.*

## Char-Gale PERIMETER REGISTERS "GET AROUND"

Because there's a style and size  
FOR EVERY NEED!

Absolutely essential to the proper operation of any perimeter heating or cooling system is the choice of properly-engineered registers. Char-Gale's complete selection makes it easy for you to provide exactly the right register for every situation. Char-Gale manufactures floor diffusers, base-board diffusers, ceiling diffusers, wall diffusers and out of the wall diffusers. They provide even air distribution in all directions, to thoroughly blanket the outside wall without unpleasant drafts or blasts of air. Adjustable for complete balancing at registers, they provide positive shutoff without noise.

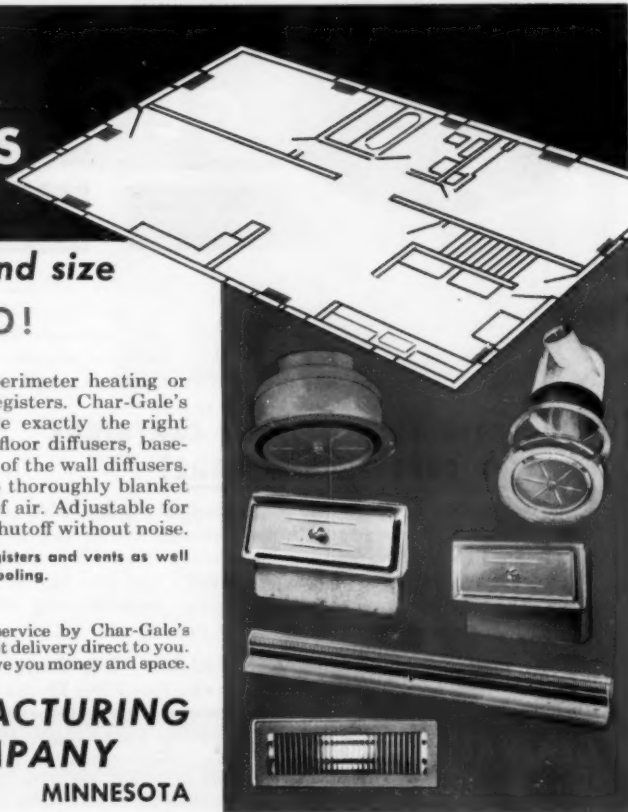
Char-Gale also manufactures a complete line of conventional registers and vents as well as galvanized and aluminum pipes and fittings for heating and cooling.



Rapid, nation-wide delivery service by Char-Gale's own fleet of trucks means prompt delivery direct to you. Reduces your inventories to save you money and space.

## Char-Gale

MANUFACTURING  
COMPANY  
ANOKA, MINNESOTA



### Oil Burner Nozzles

1956 EDITION OF "THE NOZZLE GUIDE" (\$1.00) presents information designed to aid oil burner installation and service men in selecting the proper nozzle for various types of oil burners. More than 200 manufacturers of oil burners supplied information regarding nozzle firing rates as well as spray angles and patterns. Also listed are manufacturers' recommendations as to size and type of nozzles to be used for various models of burners—*William Steinen Mfg. Co., Dept. AA, 43 Bruen St., Newark 5, N.J.*

### Gas-Fired Heating Units

CIRCULAR describes "Hi-Lo" warm air furnaces for natural, manufactured, mixed or LP gases. Specifications are given for three models with capacities of 80,000, 100,000 and 120,000 Btu input. All three models have the same overall dimensions; height 53 in., depth 30 in. and width 22 in.—*Delta Heating Corp., Dept. AA, 1 Cole St., Trenton 8, N.J.*

### Sheet Metal Working Machinery

BULLETIN 360-G gives data on universal iron workers

and diagonal combination machines which permit punching, shearing, cutting, slitting, notching and coping operations without changing tools. Included are photographs showing construction details as well as illustrations of typical operations. Bending rolls, billet shears and drilling machines are also described—*Bujalo Forge Co., Dept. AA, P. O. Box 985, Buffalo 5, N.Y.*

### Air Distribution System

CATALOG 29F-GE (eight pages) describes the "Thermo-Base" extended baseboard system of air distribution. Detailed instructions, supplemented by line drawings and diagrams, are given for the installation of the system in both residential and commercial heating and cooling applications. Tables give heat gain and construction data as well as throw and spread data for entering air 20 deg below room temperature. A section on heat loss calculations is included which presents an actual example explaining how to calculate heat loss in a typical residence—*Gerwin Industries, Inc., Dept. AA, 214 Spring St., Michigan City, Ind.*

### Industrial Ventilation

ROOF VENTILATORS for industrial applications are described in a 60 page illustrated brochure which fea-

## Great Things Keep Happening to

# GENERAL FUEL OIL FILTERS



**Model  
1A-25A  
General  
Filter**

**PORCELAIN-LIKE PLASTIC FINISH  
COMPLETELY RESISTS ACID & OIL!**

A NEW porcelain-like, plastic finishing process recently adopted by General Filters accounts for the "new look" in GF filter bodies! This new finish is tough, long-wearing and loaded with eye-appeal. It won't chip, crack or discolor. It's completely corrosion-proof! A NEW reason why Generals are the easiest-to-sell filters your shop can handle!

**PATENTED TREATMENT OF CARTRIDGE  
CENTER CORE FILTERS MORE!**

New patented treatment inside General Filters 2A-700A and 1A-25A actually helps either model filter finer and faster! Treatment of this wire mesh cartridge core prevents any lint from passing into the oil. It also makes the surrounding felt uniformly dense so foreign particles can't channel through and clog burner nozzles. A General Filter on every fuel oil burner insures cleaner, better-burning oil, complete protection of burner parts, and sure, easy profit for you!



**INSIDE**



**Model 1A-30  
General Refill**

**Only GENERAL Has "Step Design" plus Patented Center Core Treatment! Any Filter Works BETTER with a GF Refill!**

**GENERAL FILTERS, INC.** 43800 Grand River Avenue, Novi, Michigan

IN CANADA: Canadian General Filters, Ltd., 39 Crockford Blvd., Scarborough, Ontario





# More to Sell\*

with



\* **HIGH CAPACITY**  
(As Much As 1 G.P.H.)

\* **POSITIVE CONTROL**  
(By Humidistat—Set It, Forget It)

\* **AUTOMATIC OPERATION**  
(Furnishes Exact Humidity Needed—  
But Only When Needed)

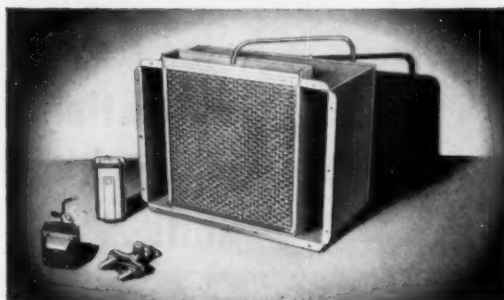
## PLUS! BACTERIA REMOVAL

Now...you have even more to sell with Aprilaire Humidifiers!

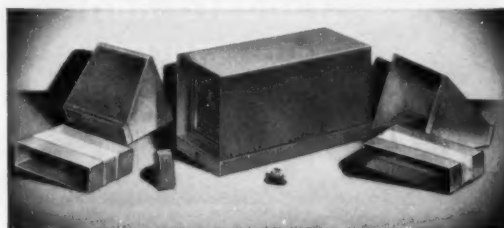
The unique operational advantages of this newest principle of automatic humidification now includes an outstanding and revolutionary first—BACTERIA REMOVAL!

Up to 70% of all bacteria is removed from the air stream passing through the Aprilaire...and this new and vital health feature is a premium benefit to offer your customers.

And the Aprilaire's many other features—positive control, high capacity, constantly maintained proper relative humidity—all add up to better health, greater comfort and economy. For more to tell...and sell...it's the Aprilaire!



**PLENUM MODEL**—for forced air furnaces. Easily mounted on warm air bonnet. Uses plenum heat for evaporation—furnace fan and ducts for distribution of humidified air.



**UNIVERSAL MODEL**—installed on or between joists in basement or crawl-space. Flexibility of installation permits baseboard or wall registers.



**PORTABLE MODEL**—no installation necessary. Ideal for offices, apartments—wherever a permanent installation is not desired.

SEND IN COUPON FOR  
COMPLETE INFORMATION



**RESEARCH PRODUCTS Corporation**  
MADISON 10, WISCONSIN

**RESEARCH PRODUCTS CORPORATION**  
Dept. 91, Madison 10, Wisconsin

I'm interested in the Aprilaire. Send me more information including literature, prices, specifications and the profit-making proposition.

CO. NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

BY \_\_\_\_\_



*Attention*  
**manufacturers  
of heating and  
air-conditioning  
units . . .**

# NATIONAL LOCK

standard and  
special-purpose

# FASTENERS



THREAD-CUTTING  
SCREWS



STOVE  
BOLTS



THREAD-  
CUTTING  
"SEMS"



"SEMS"



"KEPS"  
Registered  
Trade Mark  
of Illinois  
Tool Works

WRITE FOR  
COMPLETE INFORMATION

**NATIONAL LOCK COMPANY**  
Rockford, Illinois • Fastener Division



*bring you*  
**PURCHASING EFFICIENCY**  
*assure you*  
**PROMPT DELIVERY**  
*save you*  
**PRODUCTION TIME**

Extensive research, engineering and production facilities are combined at National Lock Company to supply uniform-quality fasteners of every description . . . on time. You'll find National Lock a mighty dependable source for ALL your hardware requirements. Investigate the many time-saving, money-saving advantages you'll gain from 1-source purchasing from NATIONAL LOCK.

*"All From 1 Source"*

**CATCHES • HINGES • PULLS  
HANDLES • CRATING BOLTS**

## new literature

(Continued)

tures a nomogram designed to enable engineers to calculate the number of air changes provided by a ventilation system. The ventilators can be used as individual units or built up in various combinations into a comprehensive system of ventilation, the company states. Also included is information on automatically or manually controlled louvers as well as stationary types—*Colt Ventilation of America, Inc., Dept. AA, 4652 Hollywood Blvd., Los Angeles 27.*

## Electric Motors

DESIGN FEATURES of totally enclosed, fan-cooled motors as well as open drip-proof and explosionproof models are described in three illustrated catalog inserts. In addition to cutaway views of the motors, the bulletins include tables of ratings and dimensions as well as hp frame charts. Ask for bulletins by number: 51B7225D (totally enclosed, fan-cooled type); 51B-6210G (open drip-proof); and 51B7286G (explosion-proof)—*Allis-Chalmers Mfg. Co., Dept. AA, 1176 S. 70th St., Milwaukee, Wis.*

## Furnace Duct and Fittings

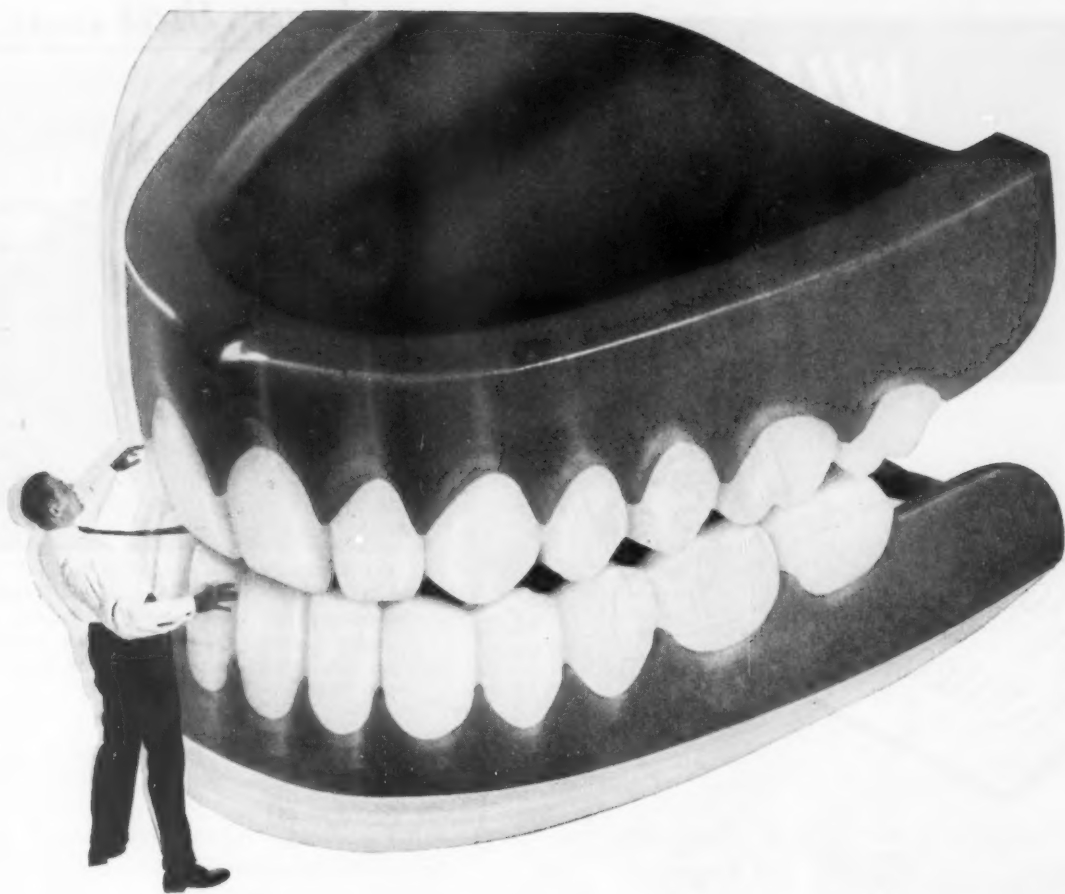
THREE COLOR WALL CHART measuring 24 × 38 in. illustrates and describes standardized pipe, duct and fittings for residential heating and cooling installations. Equipment shown includes stack heads, wall stack, trunk duct, trunk elbows and fittings, register boots and stack boots, trunk takeoffs and reducers, extended plenum takeoffs, perimeter tees and fittings, and floor register boxes—*Adelta Mfg. Co., Inc., Dept. AA, 21st & Ellsworth Sts., Philadelphia 46.*

## Fractional HP Motors

BULLETIN GED-2020B gives information on how to choose the correct fractional hp motor for various shop jobs. The bulletin explains the terms horsepower, starting ability, shaft speed and voltage. It contains motor application and selection data for 50 typical applications including sanders, compressors, drill presses, fans, grinders, jig saws, lathes and pumps—*General Electric Co., Dept. AA, Schenectady 5, N.Y.*

## Fan Motors for Window Cooling Units

BULLETIN GEA-6533 illustrates construction features of type KCP, permanent-split capacitor fan motors for window air conditioners in ratings from 35 mhp to 1/6 hp. Included is a "Design Engineer's Corner" which points out the motor's speed versatility, low temperature rise, high power factor and other design advantages—*General Electric Co., Dept. AA, Schenectady 5, N.Y.*



## Don't get bit by the "PRICE TALKERS!"

If the fast-talking "price" boys are snapping up the multiple housing or single replacement jobs you should be getting, here's the way to beat them! If you handle Perfection Regulaire warm air furnaces, you can *sell builders without price cutting*, because they get a *guaranteed extra*

*profit* on every house. There's no mystery about it. Any house equipped with a Perfection Regulaire furnace brings a higher loan appraisal. This kind of money in the bank for your builder customers means you can do business, and plenty of it, at a good, legitimate profit.

### **You sell the replacement business without shaving your profit!**

Perfection's Regulaire and 3-stage fire gives your prospects an incentive to buy that the "price talkers" can *never* approach. And Perfection's new, down-to-earth "kitchen table" sales tool makes it clear in no uncertain terms why it pays to buy from a Perfection *guaranteed* dealer. So, talk to Perfection. Perfection Industries, Division of Hupp Corp., 7705-E Platt Avenue, Cleveland, Ohio.



TALK TO

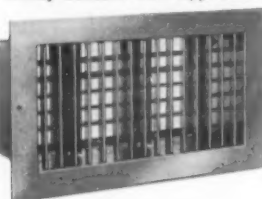
# Perfection

AUTOMATIC HEATING • SUMMER COOLING • HEAT PUMPS

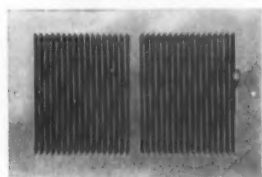




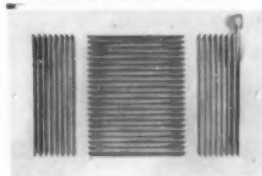
4-Way Deflector with Opp. Blade



Multi-Louver Register



Sidewall Perimeter Diffuser



A Complete line of Registers, Grilles & Diffusers for the Residential Field plus a Complete Line of Double Deflection Registers & Diffusers with Opposed Blade Dampers, Extractors & Volume Control for the Commercial & Air Conditioning Field

WRITE OR WIRE FOR PRICE CATALOG AND NAME OF YOUR NEAREST JOBBER



**KRUEGER**  
AIR CONDITIONING COMPANY

19 E. RILLITO • TUCSON, ARIZONA • PHONE MAIN 2-2805

*we hear that...*



CONSTRUCTION of test school building begins as John W. Norris, president of Lennox Industries Inc. turns over first spadeful of earth. "Comfort Curtain" classroom heating and ventilating equipment will be installed and tested in the school

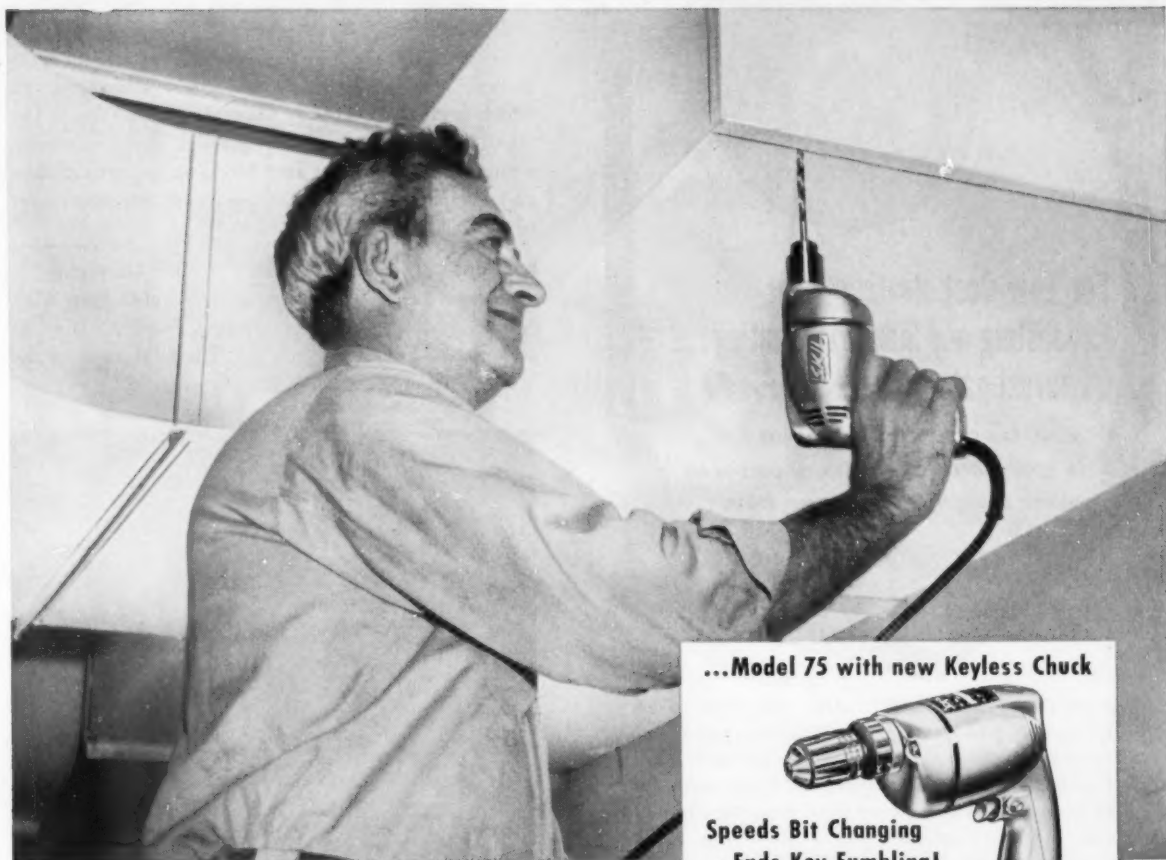
► LENNOX INDUSTRIES INC. is constructing a test school building in Des Moines, Iowa where it will install "Comfort Curtain" classroom heating and ventilating equipment. The "Comfort Curtain" system is the result of four years of intensive research into the problem of maximum classroom comfort at a minimum of cost, according to the company. However, the company says, the equipment will not be marketed until completion of the test. "Successful completion of the system will offer many outstanding benefits," according to John W. Norris, president of the firm. "It will mean comfortable classroom temperatures regardless of the weather outdoors and the number of students in the room, plus continuous circulation of outside air throughout the room during all seasons of the year." Mr. Norris pointed out that the Lennox company is asking the cooperation of the education department to use the building just as it would any other school. "This will give us an opportunity to iron out any on-the-spot control problems in our equipment," he said. Occupancy of the new building by regular grammar and high school classes is scheduled for next February. The company expects to continue testing and improving the equipment and plans to install summer cooling in the near future.

► FORTY EXECUTIVES from the national distributing organization of the Frigidaire Div., General Motors Corp. gathered recently at Dayton, O. to study the latest developments in year 'round home climate control. The group, first graduates of the division's new application training school, completed a brief but intensive factory session devoted to residential air con-



**New Working Flexibility! New Ease of Handling  
...Even on Toughest, Hard-To-Reach Jobs!**

# SKIL 1/4" DRILL



**...Model 75 with new Keyless Chuck**



**Speeds Bit Changing  
...Ends Key Fumbling!**

## **Speed Drilling Work on the Job or in the Shop!**

Although lighter in weight and much easier for the workman to handle, SKIL Model 75 is actually 55% more powerful. Ideal for drilling tough, hard-to-reach jobs in a hurry. Increases worker output and speeds assembly operations. Matchless performance, top operating power, longer life under constant, rugged use.

Addition of high-torque Keyless Chuck now gives fresh working advantages to Model 75 Drill, already one of the most popular tools in the SKIL line.

## **Advantages that make SKIL the favorite!**

- Greater working flexibility—with the new high-torque Keyless Chuck! Greater gripping power than keyed chucks.
- Motor 55% more powerful, yet lighter than previous model.
- Choice of 7 speeds (500 to 5,000 r.p.m.).
- Handy, safety-designed trigger lock for continuous operation—side location for easy use.
- All anti-friction bearings for longer drill life.
- Large inspection plate for routine maintenance.
- Comfortable "contour-grip" handle.

**SKIL**  
PORTABLE TOOLS

Made only by SKIL Corporation  
formerly SKILSAW, Inc.  
5033 Elston Avenue, Chicago 30, Illinois  
3601 Dundas Street West, Toronto 9, Ontario  
Factory Branches in ALL Leading Cities

**FREE!**

**Demonstration and Free Trial  
will prove SKIL is the answer  
to your installation bottle-  
necks! Send coupon today!**

**When you buy a Drill, be sure it's a SKIL!**

SKIL Corporation, Dept. AA-116  
5033 Elston Avenue, Chicago 30, Illinois

- ☐ I would like a demonstration and trial—FREE!  
☐ Please send me illustrated literature on SKIL Model 75.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_ STATE \_\_\_\_\_

Capacities of 56 standard and heavy duty models (6 to 30-inches diameter) . . . 140 CFM to 16,766 CFM with or without stacks. Greater capacities on special order.



## For Low-Cost Heating Plant Exhausting and Industrial Venting... Investigate **Quickdraft**

- ★ NO FAN OBSTRUCTION IN EXHAUST LINE
- ★ BLOWER OPERATES IN CLEAN OR OUTSIDE AIR
- ★ CAN BE USED WITH OR WITHOUT STACK

**FOR HEATING PLANTS AND INCINERATORS.** Quickdraft provides constant draft required for efficient and economical combustion. It prevents noxious concentrations of deadly fumes and dangerous accumulations of explosive gasses from escaping into buildings. It eliminates pulsating or chattering, puffing, smoking and sooting.

**FOR INDUSTRIAL VENTING.** Quickdraft eliminates down-time for cleaning and replacing fan blades . . . cuts maintenance costs. It is ideal for venting paint booths . . . abrasives, corrosive gasses, noxious fumes, high temperatures and moisture.

**FOR MOVING AIR** . . . in or out of buildings through ducts . . . Quickdraft is outstanding.

Send for engineering data  
... today.



Dueber-Hampden Building • P. O. Box 87-D • Canton 1, Ohio

## we hear that

(Continued)

ditioning. Curriculum for the two-day meeting covered basic refrigeration fundamentals, load determination, equipment selection, system design, and heating and air conditioning applications. Each district representative who attended the school will soon begin application field training for dealers in his territory.

Some 275 dealers in the Detroit area attended the dedication of the division's new service training school which opened recently at General Motors Corp.'s Detroit training center. E. E. Landis, division service manager, acted as host at a luncheon for area dealers and company officials who made an inspection tour of the facilities at the center.

▶ **FOUR YEAR SCHOLARSHIPS** to the University of Tennessee are being offered to three outstanding high school graduates by the Fulton Sylphon Div. of Robertshaw-Fulton Controls Co. The total value of the scholarship program is \$4300 per year.

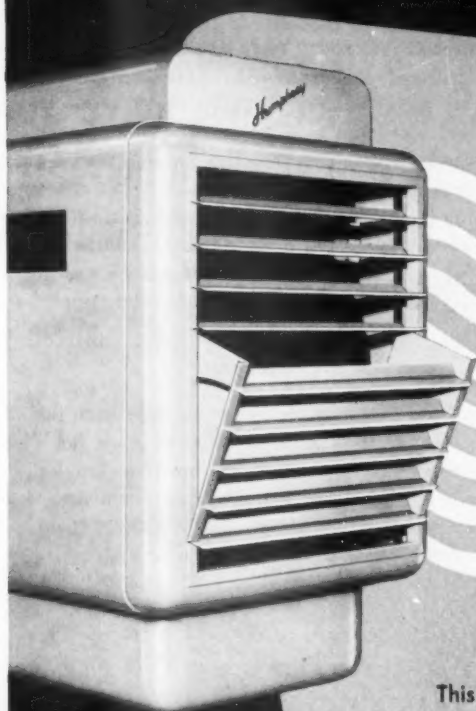


ALBERT PENN (left), Edward G. Ryan and Harv Schmidt, captain of the 1956-57 University of Illinois basketball team, examine photo of the university's first basketball team

▶ ALBERT PENN, chairman of the board of Penn Controls, Inc. was a special guest at the I-Men's banquet held recently at the University of Illinois in connection with the 50th anniversary of the university's first basketball team. Mr. Penn, who graduated in electrical engineering in 1909, was a member of that team.

▶ CLARENCE B. RANDALL, retired chairman of Inland Steel Co., was the first recipient of the "Distinguished Service Award" established by a national publication for the metal industries to honor individuals who have made outstanding contributions to the metal industry and to the community. Mr. Randall, now serving as special assistant to President Eisenhower, received a letter of congratulation from the president commending him for his "leadership in emphasizing the need

Direct warmth **DOWN** where  
you need it...with the



*Humphrey*

## TILTING FRONT

This exclusive Humphrey Tilting Front is today's most efficient means of vertical air control.

It directs the warmth downward, *without restricting the air flow*, thereby assuring maximum comfort at, and immediately above the floor level. A standard feature on Series A heaters with propeller fan, and optional on heaters with blower.

Find out more about this and other quality features of Humphrey Unit Heaters. Write today for literature.

**GENERAL GAS LIGHT COMPANY**  
Kalamazoo, Michigan



**WRITE  
FOR  
LITERATURE**  
Gives data on 12  
models, 65,000 to  
250,000 B. T. U.,  
plus complete line  
of accessories.

*Humphrey*

**AUTOMATIC  
GAS**

# UNIT HEATERS

of expanded world trade markets" and for his "long record in the metal industry and continuing guidance in charting our nation's foreign economic affairs." The award was presented at the Awards Luncheon of the 38th National Metal Exposition and Congress held recently in Cleveland.

► **NATIONAL UNION ELECTRIC CORP.** has acquired the name and business of Armstrong Furnace Co., according to C. Russell Feldmann, National Union board chairman and president. Both the products and present operating management of Armstrong will be retained, according to Mr. Feldmann. W. J. Olsen, who served as president and director, is now a vice president and director of National Union and the general manager of Armstrong Furnace Co., Div. of National Union Electric Corp., the name under which the company will operate.

► **THE DELCO APPLIANCE DIV.,** General Motors Corp., began its 1956-57 factory training schedule early this month, according to Richard T. Reddington, general service manager for the division. Factory service training schools will cover many phases of service training. The division offers a one week course in sales and service engineering which includes ses-

sions on layout, heat loss and similar subjects. There are also specialized courses offered in oil burner service, gas heating equipment and air conditioning.

The division is now offering a new warranty and protection plan for residential heating equipment. The new warranty features a 10 year protection plan on heat exchangers, in addition to the customary one year warranty on the entire unit.

► **ROBERTSHAW-FULTON CONTROLS Co.** has established a national organization to provide extensive field service for manufacturers using its various control devices, according to Charles M. Stainton, vice president and director of sales. Mr. Stainton said the new organization will set up independent control reconditioning facilities in key market locations throughout the United States. These reconditioning units will be operated by independent firms, but will be staffed with factory-trained personnel and use factory parts exclusively.

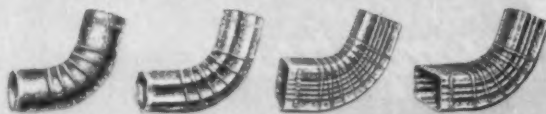
► **TWO NEW "LEARN WHILE YOU EARN"** programs providing the opportunity and financial assistance for employees to work toward college degrees while holding a full-time job have been developed by Carrier Corp. One of the programs is aimed at developing new engineering opportunities within the company. Set up in cooperation with Syracuse University, it offers a series of evening classes enabling high school gradu-

### **Conductor L. Bow says:**

FOR ELBOWS SCIENTIFICALLY  
SHAPED AND TAPERED TO FIT ANY  
STANDARD SIZE PIPE...ALWAYS  
ASK FOR CINCINNATI ELBOWS!!  
NO RAW EDGES TO RUST BECAUSE  
THEY'RE HOT-DIPPED IN ZINC AFTER  
FORMATION — AVAILABLE IN ANY  
SIZE, ANGLE, GAUGE OR METAL  
INCLUDING COPPER, ALUMINUM,  
STAINLESS OR GALVANIZED STEEL  
— SEE YOUR JOBBER!!

#### **CINCINNATI ELBOW CO.**

4730 MADISON ROAD • CINCINNATI 27, OHIO

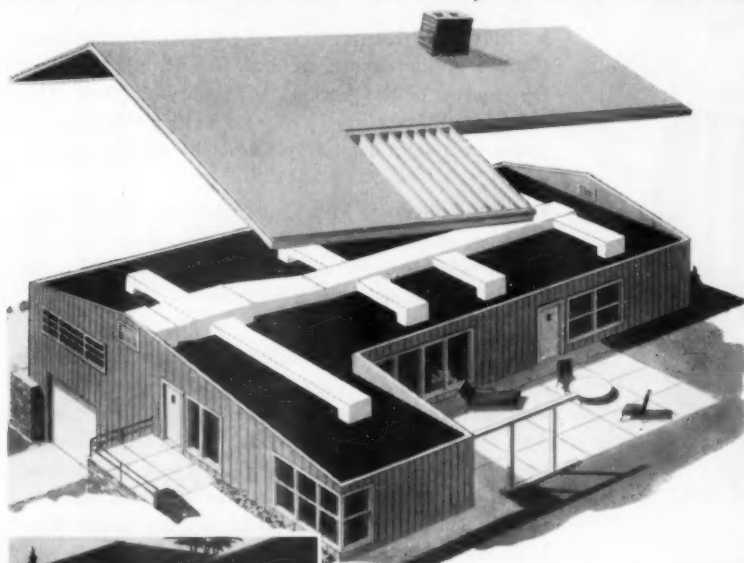




**NEW  
FROM  
YORK**

# First Really Low Cost Answer to Central Air Conditioning!

*Amazingly compact York Pathfinder Units let you put central air conditioning in homes costing as little as \$12,000. Opens doors for installations in stores, offices and larger buildings as well!*



## Low Cost...High Profit

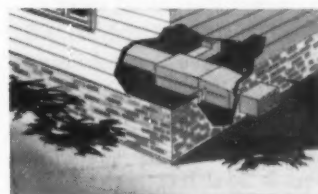
Now, York puts central air conditioning on a mass market basis with a sensational new unit that can be advertised for less than \$500. Here is something you can really get your teeth into ... really sell ... to realize the tremendous profits that are ready and waiting in this great new growth industry.

Add to this price story the quality and compactness of this new unit—that permits installation almost anywhere there's a few feet of waste space. Then add the pre-fabricated, pre-insulated ductwork that turns days of installation into hours and you'll see the tremendous profit possibilities.

The York Pathfinder installs in attic, crawl space, breezeway, garage, through the wall. Requires no plumbing, cooling tower or recirculating pump. Completely sealed cooling circuit carries a 5-year protection plan, just like a household refrigerator. Uses existing warm air systems or pre-fabricated ductwork. Available in 1 1/4, 2 and 3 ton models. Contact your York distributor today.

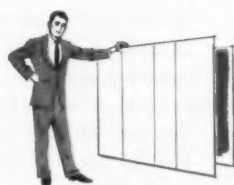


**FITS TINY SPACE**—turns attic into cooling headquarters. Even a dormer installation for hip and low roofs.

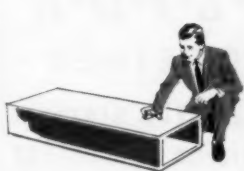


**INSTALLS ANYWHERE**—through wall to basement or crawlspace.

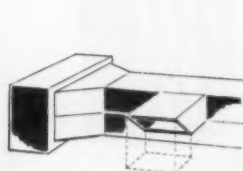
## PREFABRICATED DUCTWORK...EASY AS ABC



**A** Flat fiberglass duct can be knife-cut to any length



**B** Easily formed by simply folding on pre-scored lines



**C** Risers easily connected to main duct and sealed

Duct is 3/4" fiberglass with vinyl coating on inside and reinforced aluminum foil vapor seal on outside.

**Your FUTURE and FORTUNE  
Now Lies With York!**



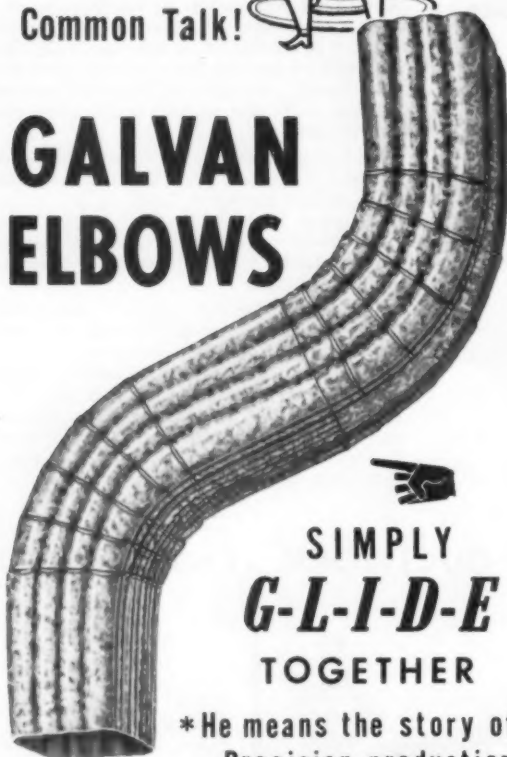
*The quality  
name in air  
conditioning*



YORK CORPORATION, YORK, PA. Subsidiary of Borg-Warner



# GALVAN ELBOWS



SIMPLY  
**G-L-I-D-E**  
TOGETHER

\*He means the story of  
Precision production



## we hear that

(Continued)

ates with the necessary college admission background to complete their freshman and sophomore years in engineering over a period of four years. Carrier pays 75 percent of all student costs. Under the second plan — a Tuition Refund Plan — the company will pay 75 percent of all student costs for any job-related courses which an employee may complete while working full time.

The company reports that for the third consecutive year it has won the bronze "Oscar of Industry" for the best annual report in the air conditioning industry, awarded annually by Financial World magazine. William Bynum, president, received the Oscar at the annual awards banquet held recently at the Hotel Statler, New York.

► EIGHTEEN distributor retail salesmen from various sections of the country recently flew to Bermuda at the expense of the Airtemp Div., Chrysler Corp. The expense-paid vacations were won earlier this year as prizes in a sales contest sponsored by the division.

► THE LONERGAN MFG. DIV., McGraw Electric Co. plans an addition to its Albion, Mich. plant. The addition, scheduled for completion in early 1957, will double present production capacity.

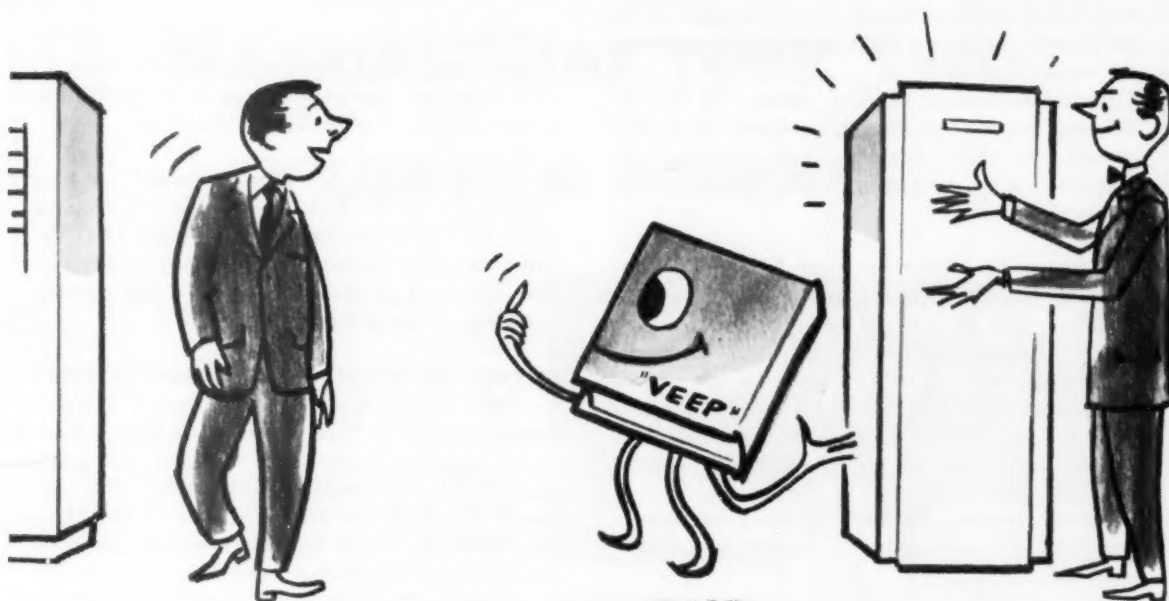
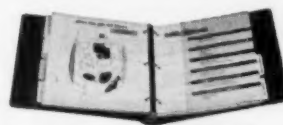
► FORTY YEARS spent in the manufacture of portable electric tools and a total of 50 years in the electric tool industry is the record of Oscar P. Wodack, president of the Wodack Electric Tool Corp. Mr. Wodack managed the Chicago office of Jas. Clark Jr. Electric Co., one of the pioneers in the manufacture of portable electric tools, from 1906 to 1919. During World War I, he opened a repair shop for all makes of electric tools and began the production of portable electric tools, including drills, grinders, saws and portable electric hammers.

► LABELED METAL PRODUCTS CORP. is planning the construction of an addition to its present plant at 2000 Cermak, Broadview, Ill. to provide increased manufacturing space for the production of rain carrying equipment, warm air fittings and sheet metal supplies. The new building, which will be approximately 44,000 sq ft in size, will also provide additional warehousing space.

► DEDICATION CEREMONIES held recently at the enlarged Joseph T. Ryerson & Son, Inc. steel service plant, 203 Westside Ave., Jersey City, N. J. were attended by some 3000 of the firm's customers as well as other business and civic leaders. The new addition increases capacity 50 percent. The plant now contains approximately 355,000 sq ft of space for warehousing, processing and shipping steel.

## THE G-E "VEEP" IN ACTION

How new G-E "Magic Sales-Maker"--a consumer visual sales presentation, popularly called "The Veep"--helps increase sales for G-E Home Heating and Cooling Dealers



## How the "VEEP" helped switch sales to me after a competitive furnace had already been bought



**JACK GRODZINS,**  
Allstate Heating and  
Sheet Metal Co., Inc.,  
General Electric Dealer  
Chicago, Ill.

Here's what the "Veep" did for **Jack Grodzins** of Allstate Heating & Sheet Metal Co., Inc., near Chicago.

While driving through a suburb Jack noticed a new home under construction. He went in to see if the heating system had been contracted. He noticed that four register openings had been roughed in—it looked as if he was too late. But on his way out a man stopped him. He was the owner of the property. "I explained why I had stopped," Jack writes. "I asked him if he would be interested in air conditioning. He was. I suggested that, before I gave him a price on cooling, he should see his own contractor." Turned out that the owner wasn't too pleased with his

contractor's work. Jack then went through the "Veep," not only on air conditioning but also on the G-E furnace and Air-Wall\* System. The owner was so impressed that he got a release from his original contract and signed with Jack for a G-E cooling unit and a G-E heating unit with Air-Wall registers.

Watch for more true sales stories like this one—in future G-E advertisements in this publication. They all teach the same lesson:—the profit-wise home heating and cooling dealer is the one who has climbed on the G-E Bandwagon. Want to join up?



### FREE! Sales Secrets That You Can Use.

Exciting success stories by G-E salesmen tell how they broke sales records with the aid of the "Veep." For your copy write **GENERAL ELECTRIC, HOME HEATING AND COOLING DEPT. AA-116 TYLER, TEXAS.**

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

Home Heating and Cooling Dept., Tyler, Texas

\* REG. TRADEMARK GENERAL ELECTRIC COMPANY

► **WORTHINGTON CORP.** has acquired a West Coast manufacturing plant located in Alhambra, Calif., which will be operated as the Western Air Conditioning Div. of Worthington. Its products will include warm air furnaces and air handling equipment for year 'round air conditioning systems designed to fit the climatic conditions of the western and southwestern states.

Nathan A. Gardner, the firm's manager of Air-Conditioning and Refrigeration Sales, Export Dept., has recently been elected chairman of the Foreign Trade Committee of the Air Conditioning and Refrigeration Institute.

► **AIRTEMP DIV., CHRYSLER CORP.** held 21 merchandising meetings in as many cities from coast to coast to outline sales promotional programs for the 1957 lines of heating and cooling equipment. The merchandising campaigns were broken down into six different programs: 1) residential heating, 2) industrial and commercial heating, 3) replacement market, 4) builder market, 5) metropolitan markets, 6) prize contest.

Dealers become eligible for the prize contest through credits received for the number of proposals made and sales closed.

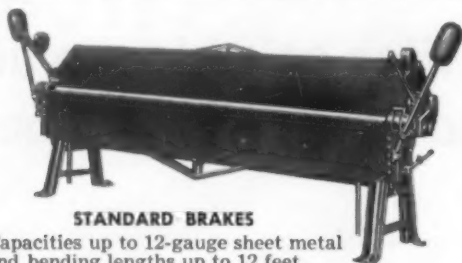
The meetings lasted all day and consisted of lectures illustrated with display posters, slide projection of detailed views of the equipment and outlines of selling points. The use of consumer literature was covered in an outline of the 115 models of heating and cooling equipment available.

The Chicago meeting drew 96 dealers and wholesalers from the midwestern states.

► **NIAGARA MACHINE AND TOOL WORKS** has opened a new district office in Indianapolis, Ind. Frank L. Kelsey has been appointed manager of the new office, which is located at 5226 N. Keystone Ave.

► **ROLAND J. AHERN** was elected president and general manager of The Peck, Stow and Wilcox Co. at a recent meeting of the firm's board of directors. Mr. Ahern has been chairman of the board of directors since 1953, and will continue to serve in that capacity in addition to his new duties.

► **TWO EXECUTIVES** of the Typhoon Air Conditioning Co., Div. of Hupp Corp., were speakers at a recent meeting of the New York chapter of the Refrigeration Service Engineers' Society. Murray Kabil, vice president in charge of engineering and manufacturing, discussed "The Technical Aspects of Service" and Maurice Firestone, eastern regional manager, addressed the group on "Customer Relations."



**STANDARD BRAKES**

Capacities up to 12-gauge sheet metal and bending lengths up to 12 feet.



**FOLDER BRAKES**

The simplicity and ease of operation make this a desirable machine for light sheet metal work. Seams and locks can be made efficiently. Capacity up to 20-gauge in three sizes of bending lengths of 36, 42, and 48 inches. Foot treadle clamp.



**PORTABLE BRAKES**

Set up shop right on the job. Capacity 20-gauge sheet metal in two sizes with bending lengths of 49 and 61 inches.

6095

## Hand Operated **BENDING BRAKES**

One Man Operation • Quick Adjustment • Rugged Construction



Descriptive Literature on Request.

**DREIS & KRUMP**  
MANUFACTURING COMPANY  
7404 S. Loomis Boulevard, Chicago 36, Illinois

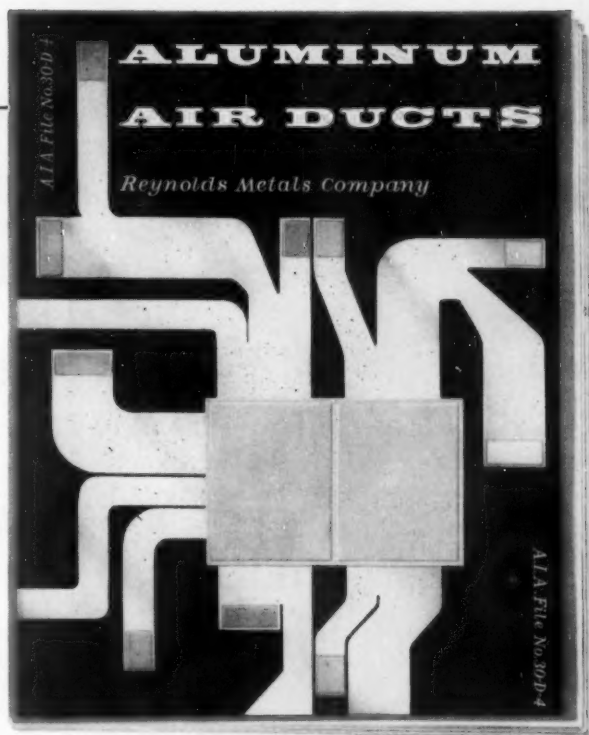


# **NOW READY! THE DUCTWORK MANUAL THAT TOOK TWO YEARS TO PREPARE...**

Modern air-conditioning—with its inevitable moisture condensation—has made rustproof aluminum ducts more important than ever. At the same time, this factor has made necessary a new body of data for specifiers and installers of ducts.

After many successive revisions, Reynolds Metals Company has now published an authoritative Application and Data Handbook on Aluminum Air Ducts. Experts of air conditioning equipment companies have cooperated with Reynolds engineers in its preparation. It is available now for professional use.

The publication of this handbook attests the rapid trend to ducts of aluminum...so frequently identified by this emblem:



**PLEASE WRITE FOR YOUR COPY  
ON YOUR COMPANY LETTERHEAD.  
REYNOLDS METALS COMPANY,  
GENERAL SALES OFFICE,  
LOUISVILLE 1, KENTUCKY**

## **REYNOLDS ALUMINUM**

See "CIRCUS BOY," Reynolds new dramatic adventure series, Sundays, NBC-TV Network.

# NEW RADIANT direct oil fired WATER HEATERS...

## GLASS-LINED...

### model GL-30

FOR HOTTER WATER—  
CLEANER, FASTER!

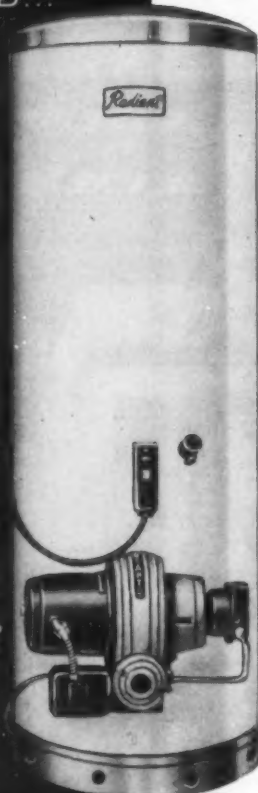
- ▶ Glass-lined boiler-plate steel tank will withstand Hydrostatic pressure of 300 lbs. psi.
- ▶ Heavy-duty Fiberglas insulation prevents heat loss.
- ▶ Magnesium anode assures rust-free water.

## COPPER...

### model CP-30

FOR MAXIMUM EFFICIENCY—  
LONGER LIFE!

- ▶ Features solid copper tank encased in heavy-gauge high strength steel to withstand Hydrostatic test pressure of 525 lbs. psi.
- ▶ Cleaner water assured always flows through Never-Rust copper.
- ▶ No heat loss — heavy Fiberglas insulation completely covers the tank.



## STYLED FOR STREAMLINED GOOD LOOKS!

You'll like the attractive baked enamel finish and smart custom styling of both new Radiant hot water heaters. They blend with the decor of modern kitchens and recreation rooms.

## LOWER COST HOT WATER!

Both new Radiant hot water heaters are equipped with famous Radiant Oil Burners for efficient oil firing . . . for heating water at lower cost.

Write for complete literature on all Radiant products.

# RADIANT UTILITIES CORP.

8817 18th Ave., Brooklyn 14, N. Y.

## we hear that

(Continued)

▶ THE R. C. S. TOOL CORP. has moved into its new facilities located at 227-229 E. Front St., Bloomington, Ill.

▶ THE TORRINGTON MFG. CO. is expanding its manufacturing operations to include assembled blowers and large blower wheels for residential heating and cooling applications. The newly designed blower units will be available initially in six sizes, with both belt and direct drive, which will be produced at each of the company's three manufacturing divisions in Torrington, Conn., Van Nuys, Calif. and Oakville, Ont., Canada.

▶ NEARLY 300 DEALERS and distributors throughout the country qualified for trips to Las Vegas in the "Las Vegas Sales Rodeo" sales contest conducted recently by the Air Conditioning Div., Westinghouse Electric Corp.



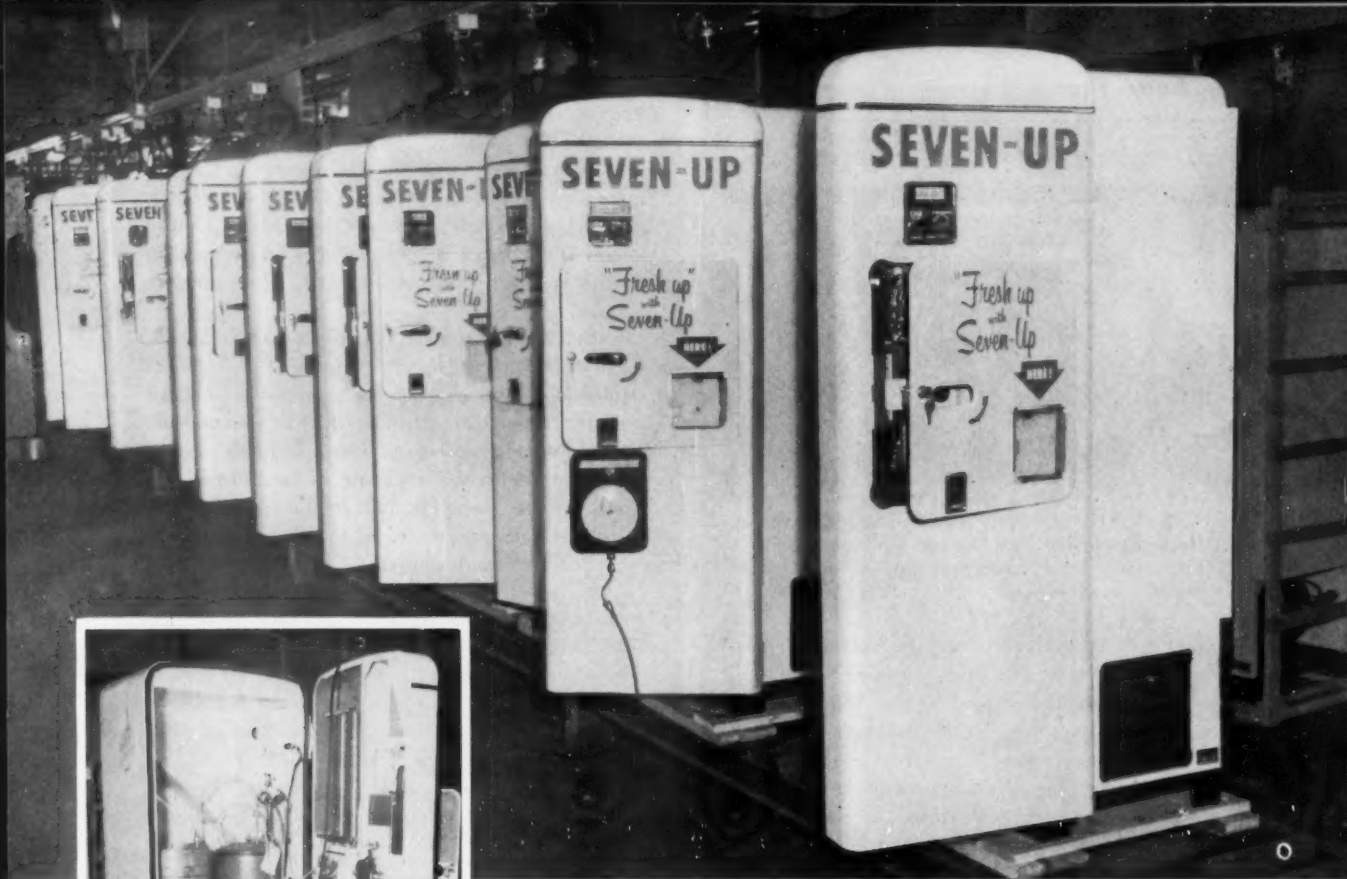
WHITE-RODGERS CO. is  
now using this trademark to  
identify all its products

▶ WHITE-RODGERS Co. recently unveiled a "new look" in trademarks. The new trademark portrays the function of the company's products—temperature control. The circle represents the dial, and the triangle, the dial indicator. The basic design has been planned to permit switches in color so the trademark will harmonize with layout and color distribution in the company's various product emblems, advertisements and display materials.

▶ THE BRYANT DIV. of Carrier Corp. provided year 'round air conditioning for the new J. I. Holcomb Observatory and Planetarium at Butler University in Indianapolis. The planetarium room is surmounted by a dome, the inside surface of which is bordered in black by a silhouette of the Indianapolis skyline. Concealed in this skyline are the heating and cooling outlets.

William Gaskell, chief service and application engineer for the division, has been named to two top positions in the Oil-Heat Institute of America, Inc. He was elected a member of the board of directors and also was chosen to head the oil-fired furnaces committee of OHI.

▶ SKUTTLE MFG. Co. has acquired controlling interest in Hadley Products Co., Marietta, O. manufacturer of permanent-type filters.



## Company uses Stainless Steel for 26 years— *"no fabricating problems"*

at Victor Products Corporation, Hagerstown, Maryland

In their new line of Seven-Up dispensers, Victor uses lots of Stainless Steel because of sanitation and rust problems. Phosphoric acid, for example, is used in soft drinks; and it would perforate many other metals.

The small tanks (which are visible inside the dispenser) are formed in an ordinary set of curving rolls. This

is easy because the type 18-8 Stainless is actually *more* ductile than mild carbon steel, although more power is required to form it.

The bottoms are attached with conventional heliarc welding, without difficulty. From one end of the shop to the other, Victor handles Stainless Steel in a completely rou-

tine manner, using equipment that was designed for carbon steel.

Stainless Steel is not difficult to fabricate, but it *is* different. The information you need has been collected into our Stainless Steel "Fabrication" book. For your copy, write to United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND  
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.  
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

# USS STAINLESS STEEL

SHEETS • STRIP • PLATES  
BARS • BILLETS



PIPE • TUBES • WIRE  
SPECIAL SECTIONS

UNITED STATES STEEL





CANADIAN SCHOOL sponsored by the Oil Heating Supplies Div., Boston Machine Works Co., attracted oil heating men from all parts of the Maritime provinces

► RALPH L. DENNIS, president, the Boston School of Advanced Oil Heat Training, recently conducted classes for experienced oil heating men from the provinces of New Brunswick, Prince Edward Island and Nova Scotia. Three men came from Newfoundland—over 700 miles from Liverpool, where the school was held—and one dealer came from the Magdalen Islands. The men received training in firing rates, combustion chamber design, draft control and draft prob-

lems, elimination of pulsation, and the proper use of instruments in determining the efficiency of oil heating plants. The caliber of the men who graduated was evidenced by the fact that the class average in the final examination was 93.6 percent, which is unusually high. The school was sponsored by the Oil Heating Supplies Div., Boston Machine Works Co. in cooperation with Steel & Engine Products Ltd., Liverpool, N.S.

► BENDIX-WESTINGHOUSE Automotive Air Brake Co., a joint subsidiary of Bendix Aviation Corp. and of Westinghouse Air Brake Co., has arranged to purchase Servel, Inc.'s assets and facilities for the manufacture of refrigeration compressors. These facilities will be operated by Bendix-Westinghouse in two former Servel buildings at Evansville, Ind. for the production of electric motor-compressors of  $\frac{1}{4}$  to  $7\frac{1}{2}$  hp for use by air conditioning manufacturers.

► MINNEAPOLIS-HONEYWELL REGULATOR Co. has consolidated its sales administration in the residential temperature control field. Under the move, the present Heating Controls Div. will be known as the Residential Div. It will have responsibility for the sale of all types of temperature control equipment for homes, including "Electronic Moduflow" which formerly was handled by the company's Home Products Div. K. L. Wilson, vice president of the firm, will direct the Residential Div.'s activities.

# Immediate Delivery from Stock

## STANDARDIZED



Air Conditioning and Heating  
Pre-Fabricated  
**DUCT and FITTINGS**

### MAXWELL STEEL COMPANY

P.O. DRAWER 230

FORT WORTH 1, TEXAS



Write for NEW CATALOG today

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Purchasing Agent \_\_\_\_\_





**NOT THIS!** Many heating systems make you uncomfortable. It's too cold at the floor, just right in the middle of the room, too hot near the ceiling.



**BUT THIS!** Waterbury COMFORTROL By-Pass Heating gives CONSTANT comfort. Tests have shown less than one degree temperature variation from floor to ceiling.

## New kind of heating gives home owners the constant comfort they want

The family at left complains. The family at right recommends its heating contractor to friends. Reason? The family at right has the constant comfort every home buyer expects.

To help you deliver constant comfort, Waterbury has developed COMFORTROL By-Pass Heating.

COMFORTROL works on a very efficient principle. It *mixes* cool air with warm air in a ratio that provides the exact temperature called for by indoor-outdoor thermostats. It supplies this warmth

continuously at the same rate it escapes through walls and windows. Waterbury COMFORTROL By-Pass Heating takes maximum advantage of perimeter heat distribution and zone controls. Easily adapted to summer cooling too.

Your customers get constant comfort in every room . . . a continuous supply of fresh, clean, humidified air . . . no hot and cold cycles or drafts. In tests, temperature varied less than one degree from floor to ceiling.

If you've ever needed an extra

feature to close a deal, you'll appreciate the talking points alone of Waterbury COMFORTROL.

**SEND FOR FREE 32-PAGE BOOKLET!**

"It Takes More Than Heat To Be Comfortable". It's packed with interesting information that will help you sell more units.



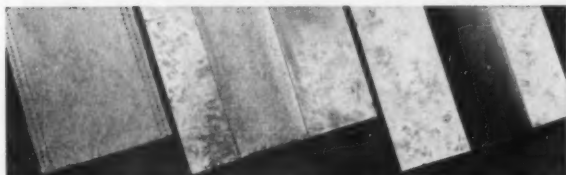
Write Waterman-Waterbury Company, 1122 N.E. Jackson Street, Minneapolis 13, Minnesota.



# Waterbury Comfortrol

By the makers of world-famous Waterbury furnaces and air conditioners

Which  
**TYPE\***  
Do YOU Prefer?



**FLEXI-DUCT VIBRA-STOP**

**\*Grant Wilson**  
**FLEXIBLE DUCT CONNECTIONS**

Stop system noise on Heating, Ventilating and Air Conditioning installations. Isolate mechanical rattles, starting vibrations, "on and off" cycle sounds, shaft whine, fan hum, etc. at their source. Apply either of the Grant Wilson Flexible Duct Connections between blower or plenum and furnace casing, between take-offs and main or branches . . . the resultant quietness of system operation satisfies customers, leads to more jobs, without call-backs.

#### FLEXI-DUCT . . .

Grant Wilson's Woven Asbestos Flexible Tape. The choice of those who want rock-bottom economy combined with top efficiency. Handy 50 foot rolls, 6 inches wide, and 150 foot rolls, 8 in. wide, both with selvaged edges. Can be taped or bolted to equipment or duct work.



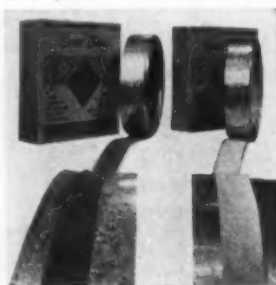
FLEXI-DUCT lifts out of carton for easy use.

#### VIBRA-STOP . . .

Asbestos or Canvas, 4" wide, factory seal to 4" No. 1 Prime Galvanized Metal on one side, 3" on the other. Preferred by those who want the quickest, easiest installation. 25, 50 and 100 foot rolls in handy, individual size "roll out" cartons.

Asbestos used is Underwriters' grade and meets Federal specs. MIL-C-4177. Canvas, also Underwriters' grade, meets Federal specs. MIL-D-10860.

Write today for full information, FREE samples and prices — ask for Bulletin 1156-AA.



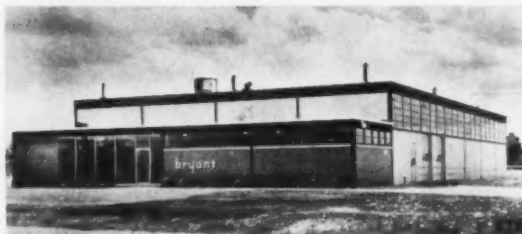
VIBRA-STOP comes in handy "roll out" cartons.

**Grant Wilson inc.**

ASBESTOS and INSULATING MATERIALS

141 WEST JACKSON BLVD. • CHICAGO 4, ILLINOIS

## wholesaler doings...



THE DETROIT WAREHOUSE of Bryant Mfg. Co. will stock gas and oil fired furnaces, conversion burners, water heaters and cooling units

► BRYANT MFG. Co. recently dedicated its new sales and distributing building in Detroit, located at 31191 Stephenson Highway. Two open houses were held to acquaint heating-cooling dealers and other industry members with the equipment and services which will be provided by the new office and warehouse. John P. Leavitt is manager of the Detroit operation.

► BRUCE AND ROBERT McDONALD, sons of D. L. McDonald, president of the A. Y. McDonald Mfg. Co., have recently joined the firm. Bruce is a member of the factory production department and Robert has joined the sales department.

► ANTHONY G. MAZZEO has been appointed sales manager of York-New Jersey Distributors, Inc., wholesalers of packaged air conditioning equipment. Mr. Mazzeo was formerly a salesman for Electric Products, Inc.

► DISTRIBUTORS for Mitchell Mfg. Co., Div. of Cory Corp., learned about the company's 1957 promotional programs at a recent series of meetings held in Chicago, New York, Atlanta, Miami Beach, Dallas and Beverly Hills, Calif. E. A. Tracey, general manager, and Howard Haas, vice president in charge of advertising and sales promotion, introduced the division's 1957 line of room air conditioners.

► A PAID WEEK-END FOR TWO at the Waldorf-Astoria Hotel, New York is the first prize in a sales contest being conducted by Demmler Bros. Co., Pittsburgh wholesaler. Scoring is based on the dollar value of purchases of "Weir-Meyer," "Janitrol" and "Moncrief" heating units regularly stocked by the Demmler firm.

► NINETEEN NEW MEMBERS recently joined Sid Harvey's club of employees with 10 or more years of service. The club has 81 members, 20 with 15 or more years of service, six with 20 years, and one — Sid Harvey himself — with 25 years. The club meets once a year at a dinner dance where each new member is presented with a sterling silver bowl engraved with his name and the date he joined the organization.



## DECEMBER 3-4-5 IN THE DESHLER-HILTON HOTEL

**Columbus, Ohio**

We urge every wholesaler to attend the National Heating and Airconditioning Wholesalers annual convention, and cordially invite you to stop in our Hospitality Room in the Deshler-Hilton Hotel.

And, we hope you will visit our modern plant and see it in operation. You'll be surprised at the many quality extras we put into Buckeye pre-fab furnace pipe and fittings — at no extra cost to you and your customers.



90° 4-piece  
galvanized elbow



No. 400-S  
snap-tite duct



No. 316  
adjustable top  
or side take-off.

Typical Time-Saving Items From  
The Buckeye Complete Line Of Pre-  
Fab Pipe And Fittings As Shown In  
Our New Catalog 936



### BUCKEYE

FURNACE PIPE COMPANY

897 Ingleside Columbus 8, Ohio

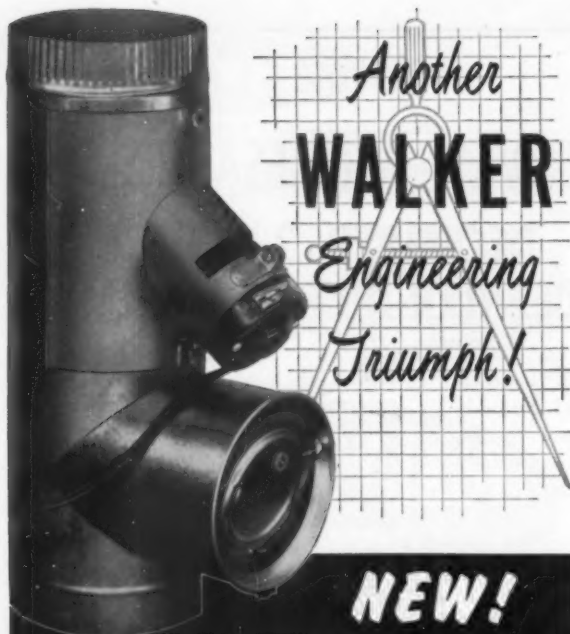
**In the New York market  
...where price is  
an important factor ...  
and rigid building  
codes exist...  
**Empire Ventilators**  
**outsell all others.****



Sold thru  
leading  
wholesalers.  
See your  
jobber.

## Empire Ventilation Equipt. Co.

35-39 Vernon Boulevard  
Long Island City 6, N. Y.



## **NEW!** **SHUR-FLO** **Draft Inducer-Regulator**

**Corrects Troubles Caused by Insufficient Draft!**

### **Completely Engineered Combination Unit Sells for Much Less Than What You'd Expect To Pay!**

Here's a new product that will correct any difficulty caused by insufficient draft...and correct it at a cost so low it's almost unbelievable!

The new Walker SHUR-FLO draft inducer-regulator combination both inspirates and regulates. After draft has been established by inducer fan, the sensitive automatic Walker regulator holds draft at maximum combustion efficiency. SHUR-FLO keeps chimney dry, stops pulsation and smoking, eliminates soot and odors.

#### **Big Aid to Contractors and Installers**

With the Walker SHUR-FLO, contractors and installers can eliminate draft troubles in both old and new housing with a single installation. The product is particularly effective in modern homes where the trend is toward lower chimney heights. Installation is simple, fast and requires only elementary wiring provisions in most cases.

#### **Tests Prove High Efficiency**

The Walker SHUR-FLO has been exhaustively tested by the largest and most prominent industrial research organization\* in the world. Their findings show that this new combination unit operates at highest efficiency under even the most adverse conditions. The SHUR-FLO unit is constructed of heavy gauge galvanized steel. The motor is a heavy-duty, fractional HP that consumes little current. Motor is specially built for draft inducer service and is mounted so that it is shielded from chimney heat. Motor requires little maintenance. Regulator and inducer fan are both constructed of corrosion-resistant material.

For the full facts on this revolutionary unit, see your supplier or write Walker Manufacturing & Sales Corporation, St. Joseph, Mo.

\*Name upon request.

**WALKER MANUFACTURING & SALES CORP.**

**1730 Penn St.**

**St. Joseph, Mo.**

## **wholesaler doings**

(Continued)

► **THE NEW YORK PLANT** of Joseph T. Ryerson & Son, Inc. will now handle Reynolds aluminum sheets, coils, rods, bars and plates in a wide range of types and sizes. A cut-to-length shearing line produces flat roller-leveled aluminum sheets in lengths to 16 ft. Other cutting facilities include squaring shears for producing blanks from aluminum sheets, and saws for cutting rod and bar stock to length. Formed aluminum sheets for building panels will also be furnished. In charge of aluminum sales at New York is James J. Crowley, formerly a sales representative at the company's Boston plant.

► **THE INTERSTATE AIR CONDITIONING CO.**, 719 W. Seventh St., Sioux City, Iowa has been appointed a distributor of Dravo gas and oil fired heating equipment. Territory to be served includes 47 South Dakota and 10 Iowa counties.

► **MAIN LINE SUPPLY CO., INC.**, 905 E. Third St., Dayton, Ohio is now stocking Janitrol unit heater equipment and will handle distribution of fan and propeller types as well as suspended and floor models in the Dayton area.

► **W. M. DUNBAR CO., INC.**, Birmingham, Ala. wholesaler, has secured the services of Art Thys, formerly of Hinkle Supply Co. Mr. Thys has been named vice president, treasurer and general manager by the Dunbar company.

► **MORLEY BROS.**, with offices in Saginaw, Royal Oak and East Lansing, Mich., has been appointed exclusive distributor of "Warm Morning" gas-fired incinerators by Locke Stove Co. The Morley firm will cover eastern Michigan. Prudential Distributors, Inc., S. 151 Stevens St., Spokane, Wash. will serve eastern Washington, western Montana and parts of Oregon and Idaho. Other new distributors are Fidelity Electric Co., 960 Republican St., Seattle, who will cover western Washington; North Pacific Supply Co., Inc., 2950 N. W. 29th Ave., Portland, Ore., who will handle sales in parts of Oregon and Washington; Tryman Distributors, Inc., 3205 W. Burleigh St., Milwaukee, whose territory will comprise most of Wisconsin and part of Michigan; and Reeves-Wiedeman Co., 2711 Warwick Trafficway, Kansas City, Mo., who will serve western Missouri and all of Kansas.

► **THOMAS E. O'NEAL**, vice president and general manager of Follansbee Metals Corp. of New York, has been named assistant to the president of Beals McCarthy & Rogers, Buffalo, N. Y. industrial supplies and steel distributor. Mr. O'Neal has been employed by the Follansbee firm for the past 10 years and before that was with U. S. Steel Corp.



## GOOD JOBS NEED GOOD TOOLS

For Longer-Lasting, Cooler-Handling use the "FITRITE" SPECIAL ALUMINUM MOP HANDLE.



Light weight, unbreakable, economical. Will not burn. It's job-tested, engineer approved, and offers many exclusive features that make it the most popular Roofers' Mop Handle made. Offered in 6', 7', and 8' lengths.

### A MECHANIC'S THIRD HAND

"FITRITE"  
3-WAY  
CLAMP

Throat  $3\frac{3}{4}$ " deep  
Jaws  $3\frac{1}{2}$ " x  $\frac{3}{4}$ "



A necessary tool for every sheet metal man. Use it for on-the-job bending, forming, seaming, straightening.

Price \$3.55

### "FITRITE" SAFETY HOISTING HOOK

The Sliding Sleeve is gravity operated and drops into position automatically keeping any item safely locked in while hoisting.



A new hoisting hook for safely hoisting buckets and other materials.

Price \$2.50

For 1" rope or cable.

To protect the trade, please use your printed stationery

**DAVID LEVOW** 308 West 20<sup>th</sup> St.  
NEW YORK, 11  
TELEPHONE CLEVELAND 3-2400-2401

## Zatko SILENTRIDE<sup>®</sup> V-Belts

for Air Conditioning Equipment

### ABSORBS 24% MORE VIBRATION

Independent laboratory check proves this light duty V-Belt absorbs 24% more vibration and noise than next best "Low Vibration" Belt.

For Air Conditioning Equipment, Forced Air Furnaces, Window and Attic Fans —also— Washing Machines, Driers and light work-shop Equipment.

T.M. Pending

**Zatko METAL PRODUCTS CO.**  
20850 ST. CLAIR AVE., CLEVELAND 17, OHIO

Zatko—World's Largest Manufacturer of stamped one-piece Pulleys

## Kirk & Blum THE BLOW PIPE SUPPLY HOUSE

- ONE-PIECE BLOW PIPE ELBOWS
- BALL JOINTS • HOODS
- FLOOR SWEEPS • FLEXIBLE TUBING
- CUT OFFS • ANGLE RINGS
- CYCLONE COLLECTORS & SUPPORTS

From one source you can get all types of blow pipe parts and components... made in production quantities by Kirk & Blum.

Depend on K & B manufacturing experience for superior blow pipe parts at less cost than hand made parts.

Write for new Bulletin No. 1356

**THE KIRK & BLUM MFG. CO.**  
3180 Forrer St., Cincinnati 9, O.



TIME SAVING  
**E-Z-ON**  
DAMPER REGULATORS  
PERMIT  
INSTANT ASSEMBLY

(Shown— head piece of #27 E-Z-ON)

It's the little things that make the Big difference!

Advanced design of E-Z-ON damper regulators permits on-the-job Assembly with only a hammer — no drilling — no rivets. This 16 gauge steel regulator is simply positioned on the damper by sliding it over the scribed center line. The E-Z-ON accurately stays in position until a hammer blow drives the sharp prongs through the damper (E-Z-ON prongs will pierce 22 gauge metal.)

### E-Z-ONS PROVED MORE PROFITABLE

Job Histories prove that your apprentice or journeyman can save two-thirds of their damper makeup time with E-Z-ONS.

**M. A. GERETT Corp.**

724 W. Winnebago, Milwaukee, Wis.

Stocked in CANADA by  
**THERMIDAIRE CORP.**  
7-9 Cumberland Street, Toronto

**STYLE & SIZE**  
Famous E-Z-ON standard design No. 27  
Solid end tail piece, threaded head piece and wing nut —  $\frac{3}{8}$ " bearing.

Superior E-Z-ON "Snap-Tite" Design No. 29  
Tail piece with retractable snap end bearing, threaded head piece and wing nut —  $\frac{3}{8}$ " bearing.



Smith's 180° Universal Brake is the answer to the need for one low cost tool that can handle a wide variety of bending and forming jobs with speed and accuracy. Designed to permit selective bending of portions of a workpiece without restriction, the Universal Brake's application and use is literally unlimited. It will handle 18 gauge mild steel 26" wide to 7 gauge 1 1/4" wide, at any angle, up to 180° in one operation. It has adjustable angle stops and back gauges to assure precise duplication of work pieces, making it a very valuable production tool. Write for illustrated circular and more details.

**R. E. SMITH**

1125 ELIZABETH AVENUE  
WAUKEGAN, ILLINOIS

**HANDY**

*The first name  
that comes to  
mind when real*

**QUALITY**

*warm air heating  
pipe and duct work  
are wanted.*

**F. Meyer & Bro. Co.**  
**Peoria — Illinois.**

## merchandising ideas



"CHAMPAGNE LADY" Alice Lon christens Omaha "composite home." Watching are Harry B. Sidles, Airtemp dealer (left) and Lawrence Welk

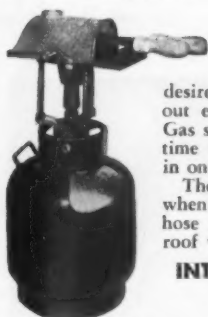
► THE OMAHA VERSION of the Airtemp Div.'s "composite home" was recently ceremoniously christened and opened to the public. Appropriately, the champagne christening was handled by "the Champagne Lady," Miss Alice Lon, vocalist with the Lawrence Welk orchestra. Mr. Welk was on hand with his entire organization to help celebrate the occasion. Harry B. Sidles, whose firm, the Sidles Conditioned Air Co. furnished the heating and cooling equipment for the house, arranged for the appearance of the Welk troupe.

► "THE SALES MASTER" is proving a valuable selling help to many heating and cooling dealers, according to the Armstrong Furnace Co. The sales master is a color strip film, projector, and sound recording. While the film shows the customer the pleasures of life in an air conditioned home, the record tells him the whole air conditioning story. The company points out that this visual and audio presentation "never forgets, never makes a mistake and is never tongue-tied."

► LENNOX INDUSTRIES INC. is advertising furnace replacement to consumers through a series of "Swap Old Smoky" ads. The ads urge the reader to "trade chores for leisure . . . expense for savings . . . chills for comfort . . . old troubles for new pleasures" — and then invite him to see his dealer for a liberal trade-in allowance on his old furnace.

► A MERCHANDISER display board with a full assortment of packaged parts for oil burner fuel units is being offered to oil heating dealers and wholesalers by the Webster Electric Co. All the items are packaged in transparent plastic bags to keep the stock protected against dust and damage.

## INSTANT LIGHTING **Insto-Gas** SOLDERING IRON HEATER



Sheet metal contractors can now have hot soldering irons in 2 minutes and with Insto-Gas they can be kept at the desired temperature all day long without even looking at the heater. Insto-Gas saves 40% on fuel cost and enough time to pay for the entire equipment in one week's operation.

The Insto-Gas soldering iron heater when attached to the cylinder by 50-ft hose can be operated on a scaffold or roof without moving the cylinder.

### INTERNALLY FIRED SOLDERING IRONS

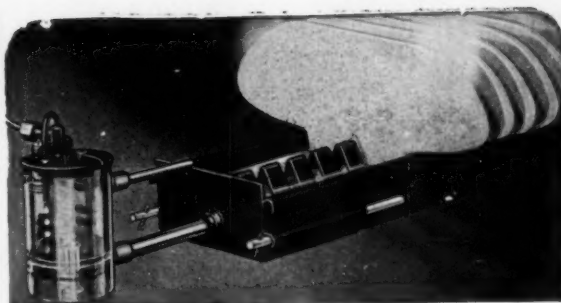
These Insto-Gas soldering irons are designed for continuous operation with no stopping to change irons. Made in three sizes; the No. 1-S (2) for fine work; the No. 2-S (5) and the No. 2-S (8) for heavy soldering.

Listed by Underwriters Laboratories and Factory Mutuals Laboratories

Write For Free Folder

**INSTO-GAS CORPORATION**  
DETROIT 7, MICHIGAN

ASK FOR NEW FOLDER ON INSTO-HOT SALAMANDERS



## There's a PROPER SIZE Monmouth for every Heating Unit

Monmouth does not offer just one size Humidifier for all heating units. It provides a complete range of sizes and capacities to do the job properly — for the correct size pan and correct number of plates are essential to efficient operation. This is especially vital with modern automatic forced air heat, with relatively low bonnet temperature, where sufficient diffusion to convey moisture to the volume of air handled is absolutely necessary. When you install the proper size Monmouth, your job is not half done, but ALL done. The complete line includes various Flotrol Models — the No. 310 for your smaller jobs and the Monmouth gas-fired Humidity Conditioner for all radiator systems. Write for descriptive Bulletins.

**THE CLEVELAND HUMIDIFIER CO.**

7802 Wade Park Avenue

Cleveland 3, Ohio

# MONMOUTH HUMIDIFIERS

How to balance air conditioning, heating and ventilating systems with the **NEW**

## PUSHBUTTON ANEMOTHERM

### AIR METER



Color-coded pushbuttons put air velocity, air temperature and static pressure at your fingertips in the new Model 60 Anemotherm Air Meter. Developed by the Anemostat Corporation of America, this versatile, accurate instrument helps you balance and check any air system. It pays for itself through time saved on only one major job.

• Write for Bulletin 55.

AC 1338A

**ANEMOSTAT CORPORATION OF AMERICA**  
10 EAST 39TH STREET, NEW YORK 16, N. Y.

### NEW IMPROVED SQUARE DUCT HANGER

With new "Positive Lock" cam action feature . . . No Special Tools! Hammer does the Job! Available in six lengths.

PAT. NO. 256 3242

A. Round Pipe Hanger used when joist is offset from duct

B. Simple Application of Square Duct Hanger as shipped to you

SQUARE DUCT HANGER No. 15

SEE your SUPPLIER or WRITE for FREE samples TEST THEM YOURSELF ON THE JOB!

Square Duct Hanger twisted and in place

AS LOW AS

**2 1/2¢**

EACH

- Sharp prong pierces
- Insert "Positive Lock" — tap in place
- Drive sharp prong into joist

**A. M. HEXDALL CO.** Manufacturers of Sheet Metal Specialties  
MORRIS, ILLINOIS





### \*OVERNIGHT SHIPMENTS TO YOUR WHOLESALER

Moncrief, being strategically located in Atlanta at the Cross-Roads of the South, is in a position to make PROMPT DELIVERIES on everything you need in Pipe and Fittings for any type of heating or cooling system. Save Time and Money on Ducts, Registers, Grilles and Diffusers by ordering from your jobber Today.

Write for Free Catalogue.



MODEL CF-500

WRITE FOR CATALOG A-11

AUTOMATIC HUMIDIFIER CO., Cedar Falls, Iowa

## appointments . . .

► ROBERT K. MILLER as general manager of the General Electric Home Heating and Cooling Department in Tyler, Tex. Mr. Miller, who has been with the company since 1947, was previously manager of manufacturing for the Vacuum Cleaner Department, Cleveland.



Robert K. Miller



A. M. Castello

► A. M. CASTELLO as sales engineering manager of the Coleman Co., Inc. Mr. Castello, formerly technical service manager of the utility operations department, has been active in the company's gas air conditioning field research and dealer training programs.

► JAMES F. PICHOTINO as area sales manager of the Midwest area office of the Redmond Co., Inc. Mr. Pichotino formerly held the position of sales engineer in charge of the Midwest area sales office located in Oak Park, Ill. He has been with the company for 12 years.

► HOWARD M. CUTSHAW as general sales manager, heating equipment, for Iron Fireman Mfg. Co. Mr. Cutshaw joined the firm in 1928 as a district representative with headquarters in Portland, Ore. In 1951 he became eastern regional manager, a position he held until his present appointment. D. Paul Bailey, formerly regional sales manager for the Ohio-Michigan area, has been appointed marketing manager by the company. He has been with the firm since 1949. Gurth Baldwin has been named manager of the sales and service branch in St. Louis. Succeeding Mr. Baldwin as manager of the Cleveland sales and service branch is Richard H. Byers.

► R. S. MARTIN as district manager of the West Coast region for the Airtemp Div., Chrysler Corp. His headquarters will be the Dodge Plant, P. O. Box 600, San Leandro, Calif. M. L. Franzel has been named St. Louis assistant regional manager for the division. Until his recent promotion he was district manager for the Denver, Colo. sales district. He will have headquarters in the St. Louis regional sales office — Room 104 Papin Bldg., 2500 Hampton Ave., St. Louis 10.

► ROBERT E. DYAS as manager of contract refrigeration sales for Perfection Industries Div., Hupp Corp. Before his recent promotion, Mr. Dyas served



## WHITNEY

Tinner's  
Riveting Hammer



T-12 Polished  
B-12 Black  
Weight —  
12 ounces

Weight Dozen —  
17 pounds

Tinner's  
Setting Hammer



T-18 Polished  
B-18 Black  
Weight —  
18 ounces

Weight dozen —  
21 pounds

These hammers are used by workmen everywhere because their weight and balance make jobs easier.

Whitney hammers are accepted because of perfect balance, the leather grip which CAN'T loosen, and because the sheet metal edge cannot damage the handle neck. One-piece prevents breakage and splintering. Made in both polished and black finish.

Please write us for literature.

Carried in stock by  
all leading job-  
bers.



**Windmaster** The Modern Draft Control  
that's "QUICKER ON THE DRAW"

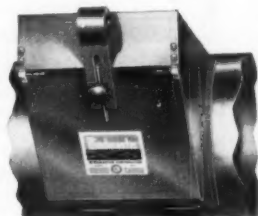
and

"FASTER In The SADDLE"



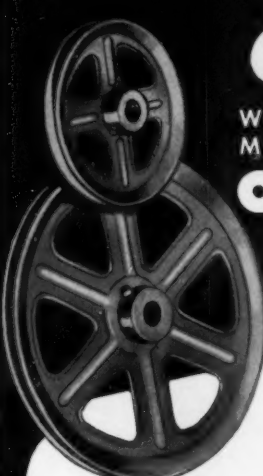
**Windmaster**  
Draft Controls

43 Vine St.  
Columbus 15, Ohio






## WORLD'S LARGEST MANUFACTURER OF ONE-PIECE STAMPED PULLEYS



Long the favorite with  
Original Equipment Manu-  
facturers of Automobiles,  
Heating and Air Condition-  
ing Equipment.

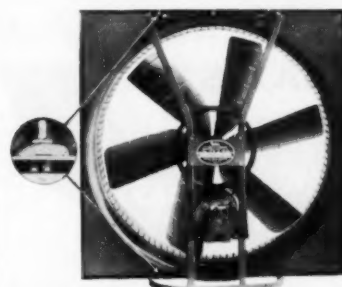
### THEY COST YOU LESS!

Because they are made in ONE-PIECE  
ZATKO ONE-PIECE PULLEYS—  
Are Stronger, wear longer and cost  
you less. Hundreds of thousands  
now in use. Write for Literature.



### METAL PRODUCTS CO.

20850 ST. CLAIR AVE.  
CLEVELAND 17, OHIO



- Easier to Install
- New Quiet Operation
- Competitive Prices

## COOLAIR Ventilating Fans

For quiet, general purpose ventilation at lowest cost, you can't beat the Coolair type CQ shown here. It's ideal for schools, auditoriums, and stores... wherever a quiet fan is needed.

Exclusive rubber vibration insulators, as shown in the insert photo, are built into the fan frame. You can meet specifications for resilient-mounted, wall-type fans with far less installation trouble and cost. No bother with mounting fan on rubber or felt.

Proof that Coolair prices are competitive—Coolair fans were used on all four U. S. 3rd Army barracks rehabilitation projects started in the summer of 1955.

Write for Free Catalog Folder:



**AMERICAN COOLAIR  
CORPORATION**

3610 Mayflower Street  
Jacksonville 3, Florida



# Cut ANY Shape in Metal...

## with a BEVERLY THROATLESS SHEAR!

- Capacities to 3/16" in mild steel
- Make clean, knurl-free cuts in any metal to capacity
- High Carbon High-Chrome Blades
- Built to last a lifetime



**Here's What a Beverly Can Do!**

Cuts made in 18 ga. metal with Model B-1

Beverly Shears are the most versatile metal shearing tools you can use. Unique shoulder design permits any cut... rack and pinion gives great power with little effort. Alloy steel body for maximum rigidity and strength. Made in 4 models.



Model B-3 with Ball Bearing Hold Down

Write for illustrated circular—or see your Beverly Distributor.

**Beverly SHEAR MFG. CO.**  
3020 W. 111th Street Chicago 43, Ill.

We're **SPECIALISTS**

in  
**Air Conditioning  
SUPPLIES and PARTS**

In this new **DEPENDABOOK** you'll find over 10,000 items—the **LARGEST Selection in the World!**



### WHOLESALE ONLY

We sell you—not your customers. And we sell you at lower prices. You select from a complete stock illustrated, described and priced in the **DEPENDABOOK**—"the standard of the trade." Your orders—for air conditioning and electric motor parts and supplies—are filled quickly and accurately.

### ORDER BY MAIL

or visit our well-stocked warehouses. Don't delay. Get the Harry Alter **DEPENDABOOK** by return mail.

Write on your letterhead to

**The HARRY ALTER CO., Inc.**

1717 S. Wabash Avenue, Dept. G, Chicago 16, Illinois  
Branches in New York, Dallas, Atlanta

## appointments

(Continued)

in a sales capacity for residential air conditioning products and was also director of technical training. Frank Early has been appointed regional sales manager for heating and air conditioning for the firm's Gibson Refrigerator Co. Div. Mr. Early will make his headquarters in Dallas and will service distributors and dealers throughout the southwest. He replaces Robert R. Clarke who recently resigned. Charles Sims will represent the Gibson Div. in Washington, D. C., Virginia, Maryland and part of Pennsylvania.



Howard A. Vernay, Jr.



Charles E. Snyder

► **HOWARD A. VERNAY, JR.** as New York regional manager handling the sale of heaters for Dravo Corp. Mr. Vernay was formerly a sales engineer in the New York office of the firm's Machinery Div. Charles E. Snyder has been named Chicago regional manager.



Robert W. Hundley



Chris Jensen, Jr.

► **ROBERT W. HUNDLEY**, formerly sales manager of the Accessories Div., William Steinen Mfg. Co., as general manager of all product divisions for the company. Chris Jensen, Jr., has been appointed sales manager of the Heating Products Div.

► **E. S. JOHNSON**, Minneapolis, Minn. as sales representative covering the northern Midwest area for Packless Metal Hose, Inc.

► **T. A. CRAWFORD** as director of marketing for York-Shipley, Inc. Before joining the York-Shipley organization, Mr. Crawford was with the Timken Silent Automatic Div., Scaife Co., where he has served in various capacities, most recently as vice president and general manager. Mr. Crawford was president of Oil-Heat Institute of America in 1951-52 and has also served as a director of the Oil-Heat association.

## PERFORATED METALS FOR EVERY INDUSTRIAL USE

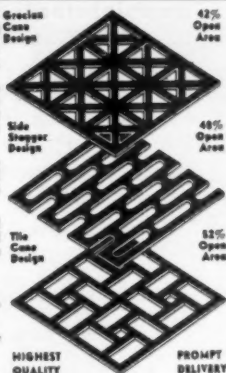
The "Ornamental" light-gauge designs here illustrated are only a few of the many you can choose from in our new Catalog 39 and we are always pleased to quote on original designs or special work of any kind.

For larger unit-openings, using metals up to 1/4" in thickness, we offer a wide variety of equally attractive designs in our Catalog 36 on Diamond Architectural Grilles.

Send us your blueprints. We are equipped to fabricate special sections to any desired extent and welcome opportunities to make money-saving suggestions.

**DIAMOND MANUFACTURING CO.**  
Box 34 WYOMING PENNA.  
(Wilkes-Barre Area)  
West Coast Plant,

Diamond Perforated Metals Co.  
17915 So. Figueroa St., Gardena, Calif.



HIGHEST  
QUALITY

PROMPT  
DELIVERY



## ORNAMENTS STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

*If you don't have catalog K, send for it NOW.*

**MILLER & DOING**

89 ADAMS STREET

BROOKLYN, N. Y.

**WHO-O-O**

**MAKES CONTROL  
INSTALLATION  
EASIER?**

See pages 28, 29

... for SPECIFICATION and BUYING Information use your JANUARY DIRECTORY NUMBER

Your job will be a lot easier if you'll keep the January Directory number of AMERICAN ARTISAN at your elbow constantly available for handy reference. It's one of your most valuable tools — one which will save you many hours of looking up the products you need for your various jobs. It's the ONE complete, up-to-date, readily accessible source of product information on who makes the snips, blowers, grilles, etc., you need — and where they're located. They're identified by trade names, too. EVERY product is listed, alphabetically arranged and printed on a distinctive yellow stock for easy reading and reference. Keep it handy ... it's a time saver.

## Saves Time—Saves Labor FOR THE Sheet Metal Duct Fabricator



CALDWELL HAMMER SEALING  
PITTSBURGH LOCKSEAM

### Caldwell Hammers Seal Pittsburgh Lock Seams with Speed and Smoothness

In addition the Caldwell Hammer is used for chipping, drilling, gouging, small riveting, cutting, scaling, caulking, etc. Tools, attachments, accessories and compressors for use with Caldwell Hammer also available.

Write for complete information.

**BURGESS THOMAS COMPANY**

Box 287

Bloomfield, New Jersey

## PEP UP GAS AND OIL CONVERSIONS WITH McLARTY BOOSTER FANS

All heating men know that gravity air conversions do not heat as well as coal because of intermittent firing. In most cases you do not need a blower at \$203 when McLarty Fans will do a fine job at under \$100 installed and show you a handsome profit. These fans will pay for themselves in fuel savings. Keep your customers happy and pick up this ready money with easy installation. No duct work, no need to shut down the furnace. Sell booster fans with every conversion job. Ask your jobber or write:

**McLARTY SYSTEMS**

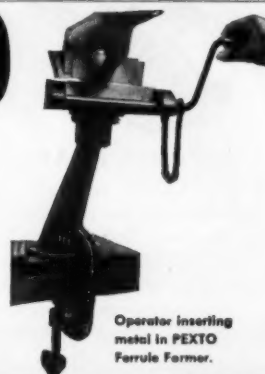
2601 Dickman Rd. Battle Creek, Mich.



## PEXTO

### FERRULE FORMER

A real PEXTO exclusive, fast accurate, portable ... can be mounted on bench standard or vise ... for making ferrules on the job. Any length up to 7" ... up to 24 Gauge ... copper, aluminum, galvanized steel. Uses scrap metal for ferrules. Write today.



Operator inserting  
metal in PEXTO  
Ferrule Former.

THE PECH, STOW & WILCOX COMPANY, SINCE 1881, SOUTHINGTON, CONNECTICUT, U.S.A.

**NEW QUIET AUTOMATIC OIL FIRED  
HOT WATER HEATER has**

*Unusual*  
**Hi-Recovery\***  
features

**120 gallons of hot water —**  
Enough for 4 baths . . . and for as  
little as \$4 per month.

**Burns No. 2 Fuel Oil —** Con-  
nects to same fuel tank for home  
heating.



**HI-RECOVERY  
QUIET AUTOMATIC**  
OIL FIRED WATER HEATER

**3 TYPES**

Glass lined — Copper lined

A.S.M.E. Galvanized: for larger homes, motels  
and apartments.

30 & 45 GAL. SIZES

\*Trade-mark reg.

For further information, write or phone

**QUIET AUTOMATIC BURNER CORP.**

33-35 BLOOMFIELD AVE. NEWARK 4, N. J.



*I give my customers  
the **BEST!***

**APTHORP TRUE ALIGNMENT  
NOZZLES**

**BOTH ARE PERFECT**  
but one may be **BETTER**  
for a **PARTICULAR BURNER**  
than the other



**HOLLOW SPRAY**



**SOLID SPRAY**

Every burner has a certain air pattern that is governed by the design of its particular head. Either an Apthorp Hollow Spray or Solid Spray Nozzle will mate best with this air pattern. By use of the right type, CO<sub>2</sub> will increase from 2% to 4%.

**WRITE FOR COMPLETE NOZZLE INFORMATION**

**BOSTON MACHINE WORKS COMPANY**  
Oil Heating Supplies Division, Manufacturers, Lynn, Mass.

**appointments**

(Continued)

► **R. C. ROBERTSON** as director of sales in Chicago and surrounding territory for Addison Products Co. Previously Mr. Robertson was with the Home Heating and Cooling Department of the General Electric Co. where he served for four years as marketing manager.



R. C. Robertson



Henry E. Storck

► **HENRY E. STORCK** as sales engineer in the District of Columbia and parts of Maryland, Virginia and West Virginia for Inland Steel Products Co. He will promote the company's metal lath products, roof deck and metal trim.

► **ROBERT SANDUSKY** as district manager covering the Omaha territory for the Janitrol Heating and Air Conditioning Div., Surface Combustion Corp. He will direct sales and service activities for residential and commercial heating and cooling equipment in a territory including Nebraska, Iowa, part of South Dakota and part of Kansas.

► **J. P. HOFFBERGER** as district manager of the Hartford, Conn. office of Century Electric Co. Prior to joining the Century company, Mr. Hoffberger was sales manager of the eastern district of the Electric Motor Div., A. O. Smith Corp. His headquarters will be at 119 Ann St., Hartford 3.

► **W. BENJAMIN ECKENHOFF** as eastern divisional sales manager for Viking Air Products, Div. of National-U.S. Radiator Corp. Appointed district sales managers within the eastern division are Bernard Trautman, Philadelphia; Richard Belcher, Ipswich, Mass.; and David J. Ahern, Long Island, N. Y. Mr. Trautman will be in charge of sales to heating distributors in eastern Pennsylvania and southern New Jersey. Mr. Belcher will service distributors in the New England states, replacing Mr. Ahern, who will now cover the metropolitan New York and New Jersey territory.

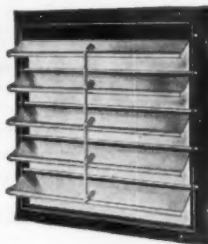
► **JAMES E. BARKER** as assistant sales manager of Copeland Refrigeration Corp. Mr. Barker joined the firm in 1954 as sales engineer following five years with the McCray Refrigeration Co., Kendallville, Ind., as service manager and northeastern U. S. district sales manager.



## Elgo Ventilating Specialties

### SHUTTERS OF MANY TYPES

All-metal shutters of great variety for commercial, industrial, residential and institutional installations. Noted for their greater strength and durability. Used by leading fan and blower manufacturers and by ventilating and air conditioning engineers.



"ELGO" TYPE  
AUTOMATIC SHUTTER  
Front View (Open)

Write for Circular and Prices

**Free  
CATALOG**

ELGO SHUTTER & MANUFACTURING CO.  
2738 W. Warren Detroit 8, Mich.

### ARE YOU THIS SALES MANAGER?

Are you interested in obtaining a responsible position with a leading manufacturer of domestic (oil & gas) heating and air-conditioning equipment . . . with a world of opportunity ahead? The man we are seeking is probably in his late thirties or early forties, with at least 10 years executive background in similar work. He must be aggressive, clean cut and self assured, with plenty of imagination and proved ability to organize and lead. College graduate preferred, but not essential. **REWARDS:** a key position in a large and expanding organization at a good salary commensurate with ability. Liberal benefits include profit-sharing plan, group insurance, hospitalization. Ideal living conditions in one of Pennsylvania's most attractive cities of medium size. If you feel you can qualify, go all out, tell us your full story. We would like to be sold. All correspondence, of course, held in strict confidence. Address: Box 1067, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

#### Statement of Ownership and Management of AMERICAN ARTISAN for October 1, 1956

The following is a statement of ownership, management, etc., as required by the act of Congress of August 24, 1912, as amended by the acts of March 3, 1933 and July 2, 1946 (Title 39, United States Code, Section 233) of American Artisan, published monthly at Chicago, Ill., for October 1, 1956.

1. The names and addresses of the publisher, editorial director, editor, and president are:

Publisher: Chas. E. Price, Glencoe, Illinois.

Editorial Director: C. M. Burnam, Jr., Chicago, Illinois.

Editor: C. M. Barnes, Chicago, Illinois.

President: Chas. E. Price, Glencoe, Illinois.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

Keeney Publishing Company, 6 North Michigan Avenue, Chicago 2, Illinois. Stockholders: W. J. Osborn, Fairfield, Connecticut; Chas. E. Price, Glencoe, Illinois; Robert A. Jack, Cleveland, Ohio.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

Chas. E. Price, President

Sworn to and subscribed before me this 6th day of September, 1956

Lydia Thomas

(SEAL)

[My commission expires November 22, 1959]

AMERICAN ARTISAN, NOVEMBER 1956

# WHO-O-O

## MAKES BETTER CONTROLS?

See pages 28, 29

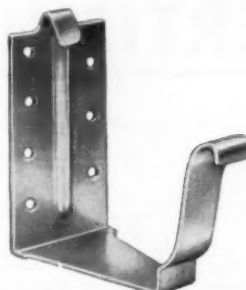
## BRUSHES and SCRAPERS

For Cleaning Tubes and Flues  
of  
BOILERS • FURNACES  
CHIMNEYS

Write  
Today  
For  
Free  
Catalog

**WORCESTER BRUSH AND  
SCRAPER CO.**  
Division of  
**MASON-WORCESTER  
BRUSH CO.**  
38 AUSTIN ST. WORCESTER 1, MASS.

### Announcing the NEW "K" BOX GUTTER HANGER

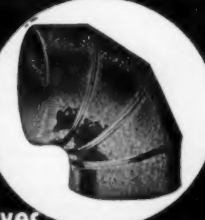


Sizes 4"-5" Zinc Coated  
SPECIAL FEATURES

- Fit — Precision made.
- Strength — Prime metal only #12 gauge.
- Rib — in back acts as a guide for gutter — prevents catching on nail heads.
- Spring Clip — stays secure under all conditions. 50 per carton including Spring Clip.

Manufactured by  
Berger Bros. Company  
229-237 Arch St.  
Philadelphia 6, Pa.

MANUFACTURERS OF  
**FURNACE PIPE  
AND FITTINGS,**  
Prefabricated Ducts,  
also conductor pipe, eaves  
trough, drip edge, rake strip, etc.



**THOR METAL PRODUCTS CO., INC.**  
Box 118 Eastwood Station Syracuse, N. Y.

... move your products in greater volume

through consistent advertising in this

# SERVICE SECTION

Rates for display space in this section are \$12.00 per inch per insertion. One-inch minimum space accepted. Closing date — 20th of month preceding issue

## SHEET METAL MACHINES & TOOLS

Lockformer Machines  
Chicago Hand Brakes  
Chicago Press Brakes  
Pexto Power Shears  
Pexto Foot Shears  
Pexto Rotary Machines  
Pexto Slip Rolls  
Pexto Bar Folders  
Smith Cleat Banders  
Savage Nibblers  
Pear Spot Welders  
Reed Power Rolls  
Wysong Shears  
Whitney Punches  
Whitney Foot Presses  
Pexto Mechanic's Tools  
Black & Decker Tools  
Bett-Marr Bandsaws  
Marshalltown Presses  
Punches and Dies  
Mipoten Pittsburgh Lock Hammers

SEND FOR CATALOG

CENTRAL-WEST MACHINERY CO.

333 S. WESTERN AVE. CHICAGO 12, ILL.  
PHONE: MAYmarket 1-0900

*Are you buying  
a Defense Bond  
regularly?*

Drive  
Cleat  
Notcher



Handles up to 3" wide,  
22 ga. or lighter. Hand  
or foot operation. Mounts  
on bench, or on job with  
clamps, or bolts and  
screws.

REINER & CAMPBELL CO., Inc.

## HANDY TOOLS AND EQUIPMENT

New  
Clip Punch

For fastening slips or seams  
on ducts. Will push a "half  
moon" through 3 thicknesses  
of 18-ga. steel. No hammer-  
ing or flattening out to fasten  
slip to the duct.

COMPLETE LINE OF SHEET  
METAL MACHINERY

Quick Set  
Dividers



Fastest and  
most accurate on  
the market. Two sizes  
for circles up to 36" and  
48". Removable steel points,  
or pencil. No center punch.

Post Office Box 5035, Newark 5, N. J.



RUBBER  
LADDER SHOES

for safe climbing  
... Order today.

JOHNSON  
LADDER SHOE CO.

Esau Claire, Wisconsin

## ADJUSTABLE ELBOWS

Registers and Grilles  
Deliveries from Stock



Juniper Elbow Co. Inc.  
72-15 Metropolitan Ave.  
Middle Village, L.I., N.Y.

... find what you need quickly  
and economically through. . .

# CLASSIFIED ADVERTISING

Rates for classified advertising are 12 cents for each word including heading and address. One inch \$6.00. Count seven words for keyed address. Minimum \$2.00 for each insertion. Cash must accompany order. Closing date 20th of month preceding issue.

## MISCELLANEOUS

### WANTED

A complete Universal Conductor Pipe Machine — Eaves Trough — Automatic O. G. Gutter and Conductor Pipe Machinery.

### WRITE

Key 1064, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

### FABRICATING EQUIPMENT

Brake: Dreis & Krump Power Leaf — 12' x 10 Ga.  
Shear: Niagara Underdriven 62" x 14 Ga.  
Punch: Rock River Horn type for tanks.  
Slitter: Niagara throat type 10 ga. cap.  
Rolls: 48" x 2 1/2" hand operated.  
Schroeder Company, Minier, Illinois

1/4" Ribbed Wire Glass, Stock Sheets, 30¢ sq. ft., cut sizes slightly extra, plus boxing. F.O.B. our warehouse. Atcheson Glass Co., 920 Main St., Buffalo, New York.

## SITUATIONS OPEN

WANTED: Heating engineer, experienced in designing warm air heating systems in industrial buildings, churches, schools, and shopping centers. To contact and sell to architects, engineers, and contractors. Salary, expenses and commissions. Well-known Michigan manufacturer of large warm air heating equipment. Address Key 1068, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

Position Open — Nationally known heating and air conditioning manufacturer has sales position open in Michigan, Indiana and several eastern states. Salary plus liberal bonus, travel expenses, company automobile. Present staff knows of this ad. Write giving all details yourself to Key 1063, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

## PATENTS

INVENTOR'S RECORD, Patent Information Booklet free on request. Franklin W. Durgin, Registered Patent Agent, 12500 Meadowood Drive, Silver Spring, Maryland.

## LINES WANTED

WANTED: Heating Specialties for Michigan, Indiana, Illinois and Wisconsin trade. Experienced and reliable sales representation. Address Key 1066, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

## AGENTS WANTED

MANUFACTURERS' REPRESENTATIVE: Get on the bandwagon — Here's a growing air conditioning manufacturer that has this year introduced — hot selling pink color units — an electrostatic air filter — and summer cooling to its famous "Whisper Quiet" line. All this backed by an approved line of gas-oil and coal air conditioners. Salary — car — insurance — commissions. Call or write The Rybolt Heater Company, Ashland, Ohio.

... turn to  
**PAGE  
176**  
please! . . .



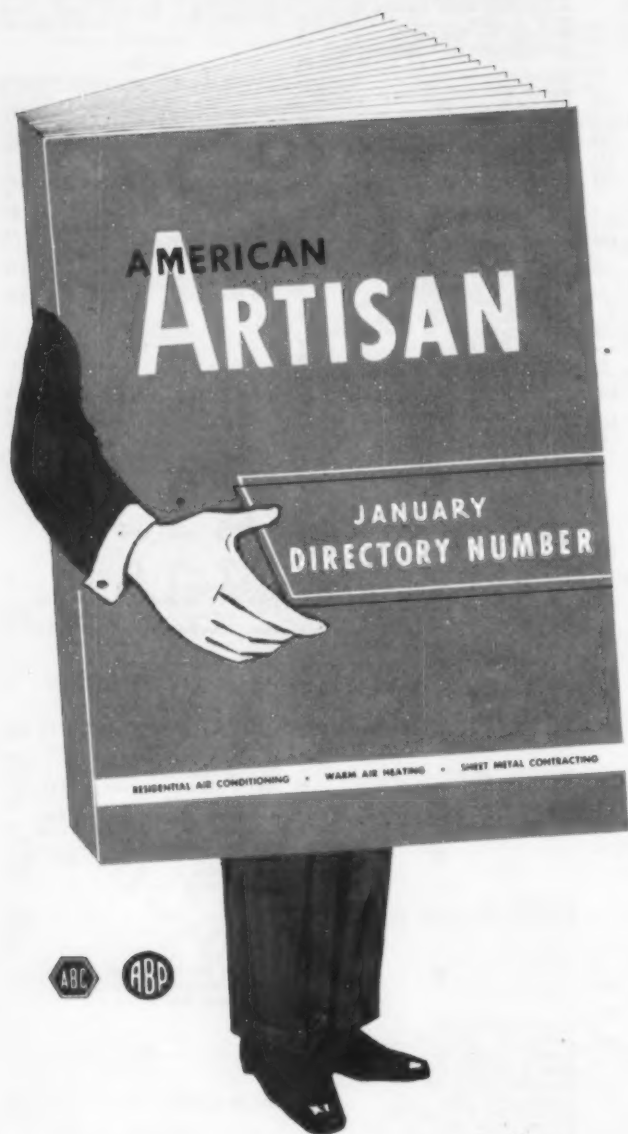
# INDEX TO ADVERTISERS

<b>A</b> A & A Register Co., The ..... A-J Mfg. Co. .... Adelta Mfg. Co., Inc. .... 34 Advance Furnace Co., The ..... 127 Aerofin Corp. .... Air Conditioning Div. of American Standard ..... 86, 87 Air Controls Inc., Div. Cleveland Heater Co. .... 8 Air Control Products Inc. .... Inside Front Cover Ajax Furnace Fitting Co. Div. Cincinnati Sheet Metal & Roofing Co. .... Allegheny Ludlum Steel Corp. .... Allen Co., Inc., L. B. .... Alton Mfg. Co. .... Alter Co., The Harry ..... 170 American Air Filter Co., Inc. .... 37 American Brass Co., The ..... 11 American Coolair Corp. .... 169 American Metal Products Co. .... 137 Anemostat Corp. of America ..... 125, 167 Armco Steel Corp. .... Armstrong Co., The ..... Armstrong Fittings Co. .... Armstrong Furnace Co. .... Auer Register Co., The ..... 109 Auto Flo Corp. .... Automatic Humidifier Co. .... 168	<b>E</b> Electro-Air Cleaner Co. .... Elen Mfg. Corp. .... Elgo Shutter & Mfg. Co. .... 173 Empire Ventilation Equipment Co. .... 163 Evans Corp., The George ..... Excelsior Steel Furnace Co., The ..... <b>F</b> Fallsington Mfg. Co. .... Field Control Div. of H. D. Conkey & Co. .... 142 Flagler Corp., The ..... Follansbee Steel Corp. .... Frigidaire Div., General Motors Corp. .... <b>G</b> Galvan Mfg. Co. .... 154 General Controls Company ..... General Electric Company ..... 32, 33, 155 General Filters, Inc. .... 144 General Gas Light Co. .... 151 Gerrett Corp., M. A. .... 165 Gibson Refrigeration Co., The ..... 22 Goodyear Tire & Rubber Co., Inc., The ..... Great Western Steel Co. .... Gustin-Bacon Mfg. Co. .... 134, 135	Little Giant Vaporizer Co. .... Lockformer Co., The ..... 9 L. O. F. Glass Fibers Co. .... 91 <b>M</b> Maid-O'-Mist, Inc. .... 26, 27 Malco Products ..... Majestic Co., Inc., The ..... Marley Co., The ..... Marshalltown Mfg. Co. .... Maxwell Steel Company ..... 160 McLarty Systems ..... 171 McQuay Inc. .... Meyer & Bro. Co., F. .... 166 Meyer & Sons, Inc. Wm. W. .... Meyer Sheet Metal Machinery Co. .... Midco Register Corp. .... 7 Mid-Continent Metal Products Co. .... Miller & Doing ..... 171 Milwaukee Gas Specialty Co. .... 13 Minneapolis-Honeywell Regulator Co. .... 35, 36, 80, 81 Modern Materials Co. .... 134 Modine Mfg. Co. .... 168 Moncrief Furnace Co. .... Morrison Products, Inc. .... 16, 17 Morrison Steel Products, Inc. .... 103 Mueller Climatrol Division of Worthington Corp. .... <b>N</b> National Engineering & Mfg. Co. .... National Lock Company ..... 146 National Metal Fabricators ..... National Super Service Co., Inc. .... National-U. S. Radiator Corp. .... 14 Nelson, Herman Div. of American Air Filter Co., Inc. .... 37 Nesbitt, Inc., John J. .... 115 Niagara Furnace Div., Forest City Foundries Co., The ..... 94 Niagara Machine & Tool Works ..... Norman Products Company ..... Nu-Way Corp. ....	<b>S</b> Scully Signal Co. .... Sequoia Mfg. Co. .... 106 Skill Corp. .... 149 Skuttle Mfg. Co. .... Smith Corp., A. O. .... Smith, R. E. .... 166 Southwest Mfg. Co. .... Spencer Thermostat Div., Metals & Controls Corp. .... Standard Furnace Supply Co., Ltd. 77, 78 Standard Stamping & Perforating Co. .... 15 Stanley Works, The ..... Steinen Mfg. Co., William ..... Stewart-Warner Corp., U. S. Machine Div. .... Sundstrand Hydraulic Division ..... 3 Surface Combustion Corp. .... 93 Sutton Corp., O. A. .... Swartwout Co., The ..... <b>T</b> Tecumseh Products Co. .... 102 Thermac Company ..... Thermo-Base Div., Gerwin Industries Inc. .... Thermo-Products, Inc. .... Thor Metal Products Co., Inc. .... 173 Thor Tool & Die Co. .... Titus Mfg. Corp. .... 95 Toridheet Division, Cleveland Steel Products Corp. .... Tuttle & Bailey, Div. of Allied Thermal Corp. .... 116 Typhoon Air Conditioning Co., Div. of Hupp Corp. .... 123
<b>B</b> Bacharach Industrial Instrument Co. .... Banner Burner Company ..... Barber-Colman Co. .... 30 Barber Mfg. Co. .... Berger Bros. Co. .... 173 Bethlehem Steel Co. .... 130 Beverly Shear Mfg. Co. .... 170 Bostitch, Inc. .... Boston Machine Works Co. .... 172 Bowser, Inc. .... Brandes Company ..... Brundage Co. .... 126 Bryant Div. of Carrier Corp. .... Buckeye Furnace Pipe Company ..... 163 Burgess Thomas Co. .... 171	<b>H</b> Hall-Neal Furnace Co. .... Haistead & Mitchell ..... Hart & Cooley Mfg. Co. .... 20 Hell Co., The ..... Henry Furnace Co., The ..... 110 Herbster Furnace Company ..... Hexdall Co., A. M. .... 167 Huck Mfg. Co. .... 12 Hussey & Co., C. G. ....	<b>O</b> Olsen Mfg. Co., C. A., The ..... 5 Owens Corning Fiberglas Corp. .... <b>P</b> Parker-Kalon Div., General American Transportation Corp. .... 101 Patten Co., J. V. .... 171 Peck, Stow & Wilcox Co., The ..... 141 Peerless Electric Co., The ..... 94 Penn Controls, Inc. .... 28, 29, 171, 173 Perfection Industries, Div. of Hupp Corp. .... 147 Permaglass, Inc. .... Premier Co. .... Purulor Products Inc. .... <b>Q</b> Quickdraft Co. .... 150 Quiet Automatic Burner Corp. .... 172	<b>U</b> United States Air Conditioning Corp. .... United States Register Co. .... 76 U. S. Steel Corp. .... 159 U. S. Steel Supply Div., United States Steel Corp. .... Utility Appliance Corp. .... Utility Fan Corp. .... 85 <b>V</b> Van Packer Corp. .... Viking Air Products Div. of The National-U. S. Radiator Corp. .... 129 Vyke Mfg. Co. .... <b>W</b> Walker Mfg. & Sales Corp. .... 164 Wallace Co., William ..... Washington Steel Corp. .... 122 Waterman-Waterbury Co., The ..... 161 Webster Electric Company ..... 111, 112 Weirton Steel Co. .... 83 Westinghouse Electric Corp., Air Conditioning Div. .... 24, 25 Wheeling Corrugating Co. .... 105 White-Rodgers Co., Outside Back Cover Whitney Mfg. Co., W. A. .... 169 Whitney Metal Tool Co. .... Williamson Co., The ..... Wilson, Inc., Grant ..... 162 Windmaster Corp. .... 169 Wiremold Co., The ..... 10 Wiss & Sons Co., J. .... Worcester Brush & Scraper Co. Div. Mason-Worcester Brush Co. .... 173 Worthington Corp. ....
<b>C</b> Campbell Mfg. Co. .... Cam-Stat Inc. .... Carey Electronic Engineering Co. .... Metal Wool Div. .... Carlin Co., The ..... Carrier Corp. .... 89 Central-West Machinery Co. .... 174 Century Electric Co. .... 97 Century Eng. Corp. .... Champion Furnace Pipe Co. .... Char-Gale Mfg. Co. .... 143 Chase Brass & Copper Co. .... 23 Cheney Flashing Co. .... Chevrolet Motor Div., General Motors Corp. .... 139 Cincinnati Elbow Co., The ..... 152 Cincinnati Shaper Co. .... Circulataire Div., Corlett-Turner Co. .... Clarage Fan Co. .... Clayton & Lambert Mfg. Co. .... Cleveland Humidifier Co. .... 167 Coleman Co., Inc., The ..... Conco Engineering Works ..... Condensation Engrg. Corp. .... Copeland Refrigeration Corp. .... Inside Back Cover Crane Co. .... 121 Crescent Tool Co. .... 114 Cribben & Sexton Company ..... Crise Controls Div., Acro Mfg. Co. .... 131 Curtis Refrigeration Machine Div. of Curtis Mfg. Co. .... <b>D</b> Delta Heating Corp. .... Detroit Controls Corp. .... Diamond Mfg. Co. .... 171 Dieckmann Co., Ferdinand, The ..... Dodge Corp., F. W. .... Drisc & Krump Mfg. Co. .... 156 Duro-Dyne Corp. ....	<b>I</b> Independent Register Co., The ..... 140 Ingersoll-Rand Company ..... Inland Steel Co. .... 98, 99 Inland Steel Products Co. .... 18 Insto-Gas Corp. .... 167 International Heater Co. .... International Nickel Co., The ..... International Sales Company ..... 132, 133 <b>J</b> Jackson & Church Co. .... Janitrol Div. Surface Combustion Corp. .... 93 Johns-Manville ..... Johnson Co., S. T. .... 174 Johnson Ladder Shoe Co. .... Jones & Laughlin Steel Corp. .... 90 Juniper Elbow Co., Inc. .... 174 <b>K</b> Kalamazoo Furnace & Appliance Mfg. Co. .... Kirk & Blum Mfg. Co., The ..... 165 Koppers Co., Inc., Industrial Sound Control Department ..... 119 Kritzer Radiant Coils, Inc. .... Kruuger Air Conditioning Co. .... 148 Kruuger Sentry Gauge Co. .... 6 <b>L</b> Larkin Coils Inc. .... Lau Blower Co. .... 107 Levon, David ..... 165 Lennox Industries, Inc. .... Lima Register Company .....	<b>R</b> Radiant Utilities Corp. .... 158 Rawplug Co., Inc., The ..... 145 Research Products Corp. .... 174 Reiner & Campbell Co., Inc. .... Replacement Parts, Inc. .... Republic Steel Corp. .... Revere Copper & Brass, Inc. .... 75 Reynolds Metal Co. .... 157 Reznor Mfg. Co. .... 136 Rheem Mfg. Co. .... 118 Richmond Plumbing Fixtures Div., Rheem Mfg. Co. .... Round Oak Company ..... Royal Products Co. .... Ryerson & Son, Inc., Jos. T. .... 38 <b>S</b> Scully Signal Co. .... Sequoia Mfg. Co. .... 106 Skill Corp. .... 149 Skuttle Mfg. Co. .... Smith Corp., A. O. .... Smith, R. E. .... 166 Southwest Mfg. Co. .... Spencer Thermostat Div., Metals & Controls Corp. .... Standard Furnace Supply Co., Ltd. 77, 78 Standard Stamping & Perforating Co. .... 15 Stanley Works, The ..... Steinen Mfg. Co., William ..... Stewart-Warner Corp., U. S. Machine Div. .... Sundstrand Hydraulic Division ..... 3 Surface Combustion Corp. .... 93 Sutton Corp., O. A. .... Swartwout Co., The ..... <b>T</b> Tecumseh Products Co. .... 102 Thermac Company ..... Thermo-Base Div., Gerwin Industries Inc. .... Thermo-Products, Inc. .... Thor Metal Products Co., Inc. .... 173 Thor Tool & Die Co. .... Titus Mfg. Corp. .... 95 Toridheet Division, Cleveland Steel Products Corp. .... Tuttle & Bailey, Div. of Allied Thermal Corp. .... 116 Typhoon Air Conditioning Co., Div. of Hupp Corp. .... 123	<b>Y</b> York Corporation ..... 153 <b>Z</b> Zatko Metal Products Co. .... 165, 169 Zink Co., John .....

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in other issues is marked with an asterisk.

In Residential Air Conditioning, Warm Air Heating, Sheet Metal Contracting

# Meet the hardest working (and lowest cost) salesman you can have throughout 1957...



Give your product line the full treatment in this recognized BUYERS' GUIDE. Published each January since 1934, this Directory Number most assuredly will do an extra-strong selling job for YOU — as it does for over 200 other advertisers every year.

The KEY warm air heating-sheet metal dealers and wholesalers (those who do 80% of the available business) receive this issue as part of their *paid subscription*. Its importance to them as a reference work has been well established over the years.

**NOTE THESE FEATURES** An alphabetical listing of all applicable products . . . names and addresses of all the manufacturers . . . a listing of all known trade names . . . a guide to the products advertised in this issue and the manufacturers' names . . . AND the normal editorial content of a regular issue to assure immediate cover-to-cover attention.

**REGULAR RATES APPLY** No premium is charged for the bonus values of this January Artisan. It's not a 13th or extra-cost number.

**CLOSING DATE DEC. 20** Plan now to capitalize on this advertising opportunity. Reserve sufficient space today — perhaps a spread, an insert, or multiple pages — to back up your sales force throughout 1957.

## AMERICAN ARTISAN

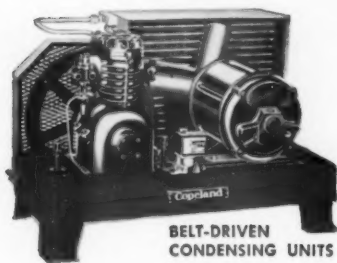
KEENEY PUBLISHING CO. AIR CONDITIONING HEADQUARTERS

6 N. Michigan, Chicago

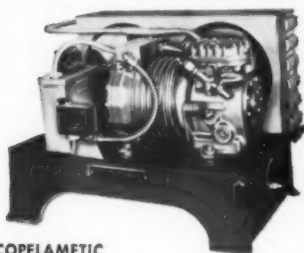




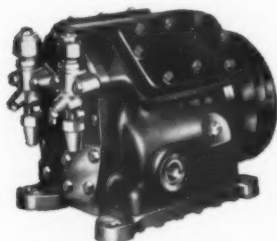
**COPELAWELD**  
Heavy duty performance at low current consumption.



**BELT-DRIVEN CONDENSING UNITS . . .**  
Superior—engineered for every refrigeration need.



**COPELAMETIC**  
the accessible hermetic . . . The industry leader for rugged dependability.



**AUTOMOTIVE AND TRUCK COMPRESSORS . . .**  
Designed for the critical needs of truck and auto air conditioning and refrigeration.

## The Heart of America's finest Air Conditioning and Commercial Refrigeration

**O**VER 500 manufacturers of quality display cases, coolers and air conditioners as well as truck fleet operators and automobile makers now use Copeland compressors and condensing units original and replacement equipment. The hundreds of thousands of units now in operation are evidence of Copeland's ruggedness, economy and dependability . . . and good reason why industry turns to Copeland for the advanced design and engineering necessary to an expanding air conditioning and refrigeration market.

WRITE FOR SPECIFICATION AND PERFORMANCE DATA

SINCE 1918

**Copeland**  
REFRIGERATION CORPORATION,

Sidney, Ohio



relaxing...playing...working



# It's today's "must"...

MODERN LIVING DEMANDS

**WHITE-RODGERS** ... CONTROLS

FOR  
MODERN  
COMFORT!

In today's functional modern homes, 'round-the-clock comfort is a must. It's for exacting household requirements like these that White-Rodgers "Controls for Modern Comfort" were specifically designed. Simple installation, trigger-quick response to every comfort need, and that famous W-R extra-best in service, for years and years to come!



New! "Fashion" Thermostat  
... most dramatic decorating  
idea in years!

**COMPLETE, COORDINATED HEATING CONTROL SYSTEMS** ... engineered for easy installation, accurate adjustment and long, trouble-free service ... using oil or gas as fuels ... with warm air, hot water or steam as mediums.

TEMPERATURE CONTROLS  
for MODERN COMFORT

## WHITE-RODGERS

ST. LOUIS 6, MISSOURI

TORONTO 8, CANADA

